

Deborah L. Estrin

Last Updated 10/20/09

UCLA Computer Science Department and
Center for Embedded Networked Sensing (CENS)
3563 Boelter Hall
Los Angeles, CA 90095
telephone: 1+(310) 206-3923
e-mail: destrin@cs.ucla.edu
web page: <http://www.cens.ucla.edu/Estrin>

EDUCATION

- 1985-Ph.D. Electrical Engineering and Computer Science
Massachusetts Institute of Technology, Boston, MA.
Supervisors: J. Saltzer (Chair), J. Meldman, M. Sirbu, G. Walker.
Thesis: Access to Inter-Organization Computer Networks.
- 1982-M.S. Electrical Engineering and Computer Science
Massachusetts Institute of Technology, Boston, MA.
Supervisors: J. Saltzer (Chair)
Thesis: Data Communications over Cable
- 1980-B.S. Electrical Engineering and Computer Science
University of California, Berkeley

ACADEMIC EXPERIENCE

- 2000-Current Professor, Computer Science Department, UCLA
2006-Current Professor, Electrical Engineering, UCLA, Joint Appointment
2002-Current Director, Center for Embedded Networked Sensing, an NSF Science and
Technology Center, Headquartered at UCLA
1998-2000 Professor, Computer Science Department, and
Project Leader, USC Information Sciences Institute
1992-1998 Associate Professor, Computer Science Department, USC
1986-1992 Assistant Professor, Computer Science Department, USC

TEACHING EXPERIENCE**Courses Taught and Developed (*)**

UCLA

- CS194 Honors Undergraduate Research Program
- CS219 Urban Sensing
- CS113* Intro to Distributed Embedded Systems
- CS213* Distributed Embedded Systems
- CS118 Computer Networks
- CS199 Directed Undergraduate Research

PhD Student Advising**Current PhD Students:**

Hossein Falaki, Donnie Kim, Teresa Ko, Martin Lukac, Andrew Parker, Sasank Reddy,
Vids Samanta

Completed PhD Students:

Lee Breslau, Nirupama Bulusu, Alberto Cerpa, Ron Cocchi, Jeremy Elson, Deepak
Ganesan, Lewis Girod, Benjamin Greenstein, Ahmed Helmy, Shai Herzog, Bau-Yi Polly
Huang, Chalermek Intanagonwiwat, Kanna Satish Kumar, Charley Ching-Gung Liu,
Danny Mitzel, Graham Phillips, Pavlin Radoslavov, Nithya Ramanathan, Anoop Reddy,
Reza Rejaie, Thomas Schoellhammer, Puneet Sharma, Thanos Stathopoulos, Gene
Tsudik, Kannan Varadhan, Hanbiao Wang, Liming Wei, Ya Xu, Haobo Yu, Yan Yu,
Daniel Zappala, Jerry Zhao

Honors

ACM Sigmobility Outstanding Contribution Award - 2009
National Academy of Engineering, Elected Member - 2009
Doctor Honoris Causa, Ecole Polytechnique Federale de Lausanne, Switzerland 2008
Distinguished Alumnus Award in Computer Sciences & Engineering, UC Berkeley 2008
Women in Technology International Hall of Fame Award - 2008
MacKay Fellow, UC Berkeley - 2007-2008

Campbell Lecturer, Southampton University – May 2007
 American Academy of Arts & Sciences, Elected Fellow 2007
 Anita Borg Institute's Women of Vision award for Innovation 2007
 First Association for Computing Machinery's Committee on Women in Computing
 (ACM-W) Athena Lecturer – 2006-2007
 Jon Postel Endowed Chair – 2005
 Institute of Electrical and Electronics Engineers (IEEE) Fellow Award – 2004
 American Association for the Advancement of Science (AAAS) Fellow Award – 2001
 Association for Computing Machinery (ACM) Fellow Award – 2000
 Okawa Foundation Award – 1997
 National Science Foundation – Presidential Young Investigator Award – 1987 to 1992
 Vinton Hayes Communication Fellowship, MIT – 1981

PROFESSIONAL ACTIVITIES: EDITORIAL and ADVISORY COMMITTEES

Refereed Conference Program Committees

- Program Committee Member, MobiSys, International Conference on Mobile Systems, Applications, and Services 2010
- Program Committee Member, Ubicomp, 12th International Conference on Ubiquitous Computing 2010
- Technical Program Committee, ACM HotMobile, Eleventh Workshop on Mobile Computing Systems and Applications 2010
- Program Committee Member, Engaging Data: First International Forum on the Application and Management of Personal Electronic Information 2009
- Program Committee Member, MobiSys, International Conference on Mobile Systems, Applications, and Services 2009
- Technical Program Committee Member, Information Processing in Sensor Networks (IPSN) 2009
- Program Committee Member, MobiSys 2008, 6th International ACM Sigmobile Conference on Mobile Systems, Applications, and Services 2008
- Technical Program Committee Member, 18th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2007
- Technical Program Committee Member, ACM Special Interest Group on Data Communications (ACM Sigcomm - Data Communication Festival) 2007
- Technical Program Committee Member, Fourth Workshop on Embedded Networked Sensors (EmNets), 2007
- Technical Program Committee Member, International Conference on Distributed Computing in Sensor Systems (DCOSS) 2007
- Steering Committee, Sixth International Conference on Information Processing in Sensor Networks (IPSN) 2007
- Program Committee Member, International Workshop on Ambient Intelligence, Media, and Sensing (AIMS) 2007
- Technical Program Committee Member, ACM Mobicom, Workshop on Challenged Networks (Sigcomm CHANTS) 2007
- Program Committee Member, ACM International Workshop on Algorithmic Aspects of Wireless Sensor Networks (ALGOSENSORS) 2006
- Technical Program Committee Member, ACM Special Interest Group on Data Communications Workshop on Challenged Networks (Sigcomm CHANTS) 2006
- Program Committee Member, Fourth Workshop on Hot Topics in Networks, (HotNets IV) 2005
- Program Committee Member, International Conference on Distributed Computing in Sensor Systems (DCOSS), 2005
- Program Committee, ACM International Conference on Embedded Networked Sensor Systems (Sensys) 2004
- Program Committee, ACM International Workshop on Algorithmic Aspects of Wireless Sensor Networks (ALGOSENSORS) 2004

- ACM International Conference on Embedded Networked Sensor Systems (SenSys) 2003 General co-chair and Steering Committee Chair
- Program Committee, ACM International Conference on Mobile Systems, Applications, and Services (MobiSys) 2004
- Committee Member, Real Time Systems Symposium (RTSS) 2003
- Workshop Program Committee Member, ACM International Workshop on Wireless Sensor Networks and Applications (WSNA) 2003
- Member of program committee, First International Sensor Network Protocols and Applications (SNPA) Workshop, (2002-2003)
- Program Committee Member, ACM OSDI, December 2002
- Program Committee Member, ACM Hotnets, October 2002
- Program Committee Member, ACM International Workshop on Wireless Sensor Networks and Applications (WSNA), September 2002
- Program Committee Member, ACM International Conference on Mobile Computing and Networking (Mobicom), September 2002
- Technical Program Committee Member, IEEE Mobile Ad Hoc Networking Committee (MobiHoc), Boston, MA, August 11, 2000
- ACM Sigcomm, Program Committee Member, 1991-2000
- Technical Program Co-Chair, Association for Computing Machinery (ACM) Special Interest Group on Data Communication (Sigcomm), 1996
- IEEE International Conference on Computer Communications (INFOCOM), Program Committee Member, 1990, 1991, 1993-98
- Program Committee Member, IEEE Global Telecommunications Conference (Globecom), 1994
- Program Committee Member, ACM Conference on Computer and Communications Security, 1993
- Program Committee Member, International Federation for Information Processing (IFIP) International Conference on Integrated Network Management, 1989 – 1993
- Program Committee and Tutorial Organizer, INET 92, Kobe, Japan, 1992
- Program Committee Member, Association for Computing Machinery (ACM) Special Interest Group on Data Communication (Sigcomm), 1991 – 1999
- Program Committee Member, International Federation for Information Processing/Institute of Electrical and Electronics Engineers (IFIP/IEEE) Distributed Systems: Operations and Management Workshop, 1991
- Program Committee Member, IEEE International Conference on Computer Communications (INFOCOM), 1990 – 1991
- Program Committee Member, Institute of Electrical and Electronics Engineers (IEEE) Symposium on Security and Privacy, 1986 – 1989
- Program Committee Member, Telecommunications Policy Research Conference, 1987

Journal Editorial Boards

- Editorial Board, Communications of the Association of Computing Machinery (CACM), 2007-Present
- Associate Editor, ACM Transactions on Sensor Networks, 2004-2006
- Associated Editor for the IEEE Magazine on Pervasive Computing, 2001-2004
- Editor, Eurasip Journal, Special Issue on Sensor Networks, 2002
- Communications of the Association of Computing Machinery (CACM) Special Issue, "Embedding the Internet", Co-Editor, May 2000
- Guest Co-Editor, IEEE Journal on Selected Areas in Communications, Special Issue on Internetworking, 1993-1994
- IEEE/ACM Transactions on Networking, member of the Editorial Board, 1993-1998
- Founding Editor, Journal of Internetworking Research and Experience, (Wiley), 1989 – 1993

Advisory and Research Committees

- Dan David Prize Review Committee for the chosen field of “Computers and Telecommunications” within the Future Time Dimension, 2010, Member
- Long Term Ecological Research Advisory Board, 2009 – 2011, Member
- National Academy of Engineering President’s Grand Challenges Advisory Committee, 2009 – 2011, Member
- Ushahidi Advisory Board, 2008 – 2011, Member
- Alfred P. Sloan Research Fellowships in Computer Science Program Committee, 2008 – 2011, Member
- Cork Institute of Technology, Ireland, NEMBES: Networked Embedded Systems Research Programme Advisory Board, 2008-Present, Member
- Computer History Museum Fellows Selection Committee, 2008-Present, Member
- Crump Institute Faculty Advisory Committee, 2008-Present, Member
- ACM Athena Lecturer Committee, 2007-2010, Member
- AAAS Electorate Nominating Committee of the Section on Information, Computing and Communication (T), 2007-2010, Elected Member
- Science and Technology Center for Coastal Margin Observation & Prediction (STC CMOP) External Advisory Board, 2007 – 2009, Member
- UCSB, National Consortium on Remote Sensing in Transportation (NCRST) UCSB Department of Transportation (DOT Project) Steering Committee, 2007-2009, Member
- World Community Grid Advisory Board, 2007- 2009, Member
- Computer Science and Telecommunications Board’s (CSTB) Committee on Engaging the Computer Science Research Community in Healthcare Informatics, 2007-2009, Member
- University of Southampton, ACM Gender Diversity Committee, 2007-2008, Member
- Initial Nominating Committee for Computing Community Consortium (CCC), November 2006 - April 2007, Member
- IEEE Alexander Graham Bell Committee, 2006-2007, Member
- MIT Dept. of Civil and Environmental Engineering Visiting Committee, 2004-2008, Member
- The National Academies Computer Science and Telecommunications Board (CSTB), 2004-Current, Member
- National Ecological Observatory Network (NEON) Senior Management Team, 2003-2007, Member
- UCLA, Institute for Pure and Applied Mathematics (IPAM) Scientific Advisory Board Member, 2003-2007, Member
- NSF Environmental Research and Education (ERE) Advisory Committee, 2003-2006, Member
- Center for Environmental Analysis – Center of Research Excellence in Science and Technology (CEA-CREST) External Advisory Board 2003, Member
- California Institute for Telecommunications and Information Technology (CAL-IT2) Advisory Board, 2002-Current, Member
- NSF Computer and Information Science and Engineering (CISE) Advisory Committee, 2002-2006, Member
- National Research Council, Computer Science & Telecommunications Board, 1999 – 2000, Editor and Chair, National Research Council, “Embedded Everywhere Report”, 2001

- Advanced Research Project Agency, Scalable Systems Study Group, 1996-97, Leader
- National Research Internet Committee, Interdomain Multicast Routing (IDMR) Working Group, 1995 –Current, Member
- Advanced Research Project Agency, Information Science and Technology (ISAT) Advisory Group, 1995 – 1998, Member
- National Research Council, Computer Science and Telecommunications Board, High Performance and Computing and Communications (HPCC) Committee, 1994, Member
- National Research Council, Computer Science and Telecommunications Board, Committee to Study Changing Nature of Telecommunications Industry, January 1993 - December 1993, Member
- National Research Internet Committee, Source Demand Routing Working Group, 1993 – 1996, Co-Chair
- National Research Council, Computer Science and telecommunications Board, Committee to Study Academic Careers for Experimental Computer Scientists, March 1992 - July 1993, Member
- AAAS Section T on Information Computing and Communication, 1990 –Current, Elected Representative, Member-at-Large
- National Research Internet Committee, End-to-End Research Group, 1990 – 1999, Member
- Office of Technology Assessment, Advanced Information Technology and Research Advisory Panel, 1989 – 1990, Member
- National Research Internet Committee, Internet Research Steering Group, 1989 – 1993, Member
- National Research Internet Committee, Autonomous Networks Research Group, 1987 – 1993, Chairperson
- National Science Foundation, Experimental Research in Electronic Submission (EXPRES) Advisory Committee, 1987 – 1988, Member

CONSULTING ACTIVITIES

- Member of Technical Advisory Board, TTI/ Vanguard Inc.,, 2007-Current
- Member of Technical Advisory Board, Sensicast Inc.,, 2003-2005
- Consulting Professor, Intel Corporation,, 2001 – 2003
- Member of Technical Advisory Board, VitalSigns, Inc.,, 1998 – 2000
- Member of Technical Advisory Board, Fast Forward Networks, Inc.,, 1998 – 2000
- Board of Directors, Precept Software, Inc.,, 1995 – 1998
- Consulting Scientist, CISCO Systems, Inc.,, 1993 – 1998

PUBLICATIONS

Refereed Journal Publications

1. Teresa Ko, Shaun Ahmadian, Sharon Coe, M P. Hamilton, Mohammad Rahimi, Stefano Soatto, and Deborah Estrin, "Heartbeat of a Nest: Using Imagers as Biological Sensors", To appear in the ACM Transactions on Sensor Networks (TOSN), 2009.
2. Sasank Reddy, Min Mun, Jeff Burke, Deborah Estrin, Mark Hansen, Mani Srivastava, "Using Mobile Phones to Determine Transportation Modes", To appear in the ACM Transactions on Sensor Networks (TOSN), 2009.
3. D. Lee, H, Kim, M. Rahimi, D. Estrin and J.D. Villasenor, "Energy-Efficient Image Compression for Resource-Constrained Platforms," IEEE Transactions on Image Processing, Vol. 18 No.9, pp. 2100-2113, September 2009.
4. K. Ni, N. Ramanathan, M. Chehade, L. Balzano, S. Nair, S. Zahedi, G. Pottie, M. Hansen, and M. Srivastava, "Sensor Network Data Faulty Types", ACM Transactions on Sensor Network (TOSN), Vol. 5 No. 3, August 2009.

5. V. Samanta, C. Knowles, J. Burke, F. Wagnister, D. Estrin, "Metropolitan Wi-Fi Research Network in the Communities of the Los Angeles State Historic Park," *Journal of Community Informatics, Field Note, Special Issue: Wireless Networking for Communities, Citizens and the Public Interest*. Vol. 4 No. 1., 2008.
6. H. Kim, M. Rahimi, D. Lee, D. Estrin, and J. D. Villasenor, "Energy-aware high resolution image acquisition via heterogeneous image sensors," *IEEE Journal of Selected Topics in Signal Processing*, August 2008.
7. Lewis Girod, Nithya Ramanathan, Jeremy Elson, Thanos Stathopoulos, Martin Lukac and Deborah Estrin, "Emstar: a Software Environment for Developing and Deploying Heterogeneous Sensor-Actuator Networks." *ACM Transactions on Sensor Networks*, Vol. 3, No. 3, pp. 1-35, August 2007.
8. Tarek Abdelzaher, Yaw Anokwa, Peter Boda, Jeff Burke, Deborah Estrin, Leonidas Guibas, Aman Kansal, Sam Madden, and Jim Reich, "Mobiscopes for Human Spaces." *IEEE Pervasive Computing - Mobile and Ubiquitous Systems*, Vol. 6, No. 2, April - June 2007.
9. Michael P. Hamilton, Eric A. Graham, Philip W. Rundel, Michael F. Allen, William Kaiser, Mark H. Hansen, Deborah L. Estrin. "New Approaches in Embedded Networked Sensing for Terrestrial Ecological Observatories," *Environmental Engineering Science*, Vol. 24, No. 2, pps. 192-204, March 2007.
10. Hanbiao Wang, Kung Yao, Deborah Estrin, "Information-Theoretic Approaches for Sensor Selection and Placement in Sensor Networks for Target Localization and Tracking," *Journal of Communications and Networks*, Vol. 7, No. 4, pp.438-449, December 2005.
11. N. Ramanathan, E. Kohler, D. Estrin, "Towards a Debugging System for Sensor Networks", *International Journal for Network Management*, 2005.
12. H. Wang, C.E. Chen, A. Ali, S. Asgari, R.E. Hudson K. Yao, D. Estrin, C. Taylor, "Acoustic Sensor Networks for Woodpecker Localization" In *Proceedings of SPIE conference on Advanced Signal Processing Algorithms, Architectures, and Implementations*, August 2005.
13. D. Ganesan, B. Greenstein, D. Estrin, J. Heidemann, R. Govindan, "Multi-resolution Storage and Search in Sensor Networks," *ACM Transactions on Storage*, August 2005.
14. Alberto Cerpa, Jennifer L. Wong, Miodrag Potkonjak and Deborah Estrin, "Temporal properties of Low Power Wireless Links: Modeling and Implications on Multi-Hop Routing. *IEEE Transactions on Mobile Computing (TMC)*, June 2005.
15. Alberto Cerpa and Deborah Estrin. "ASCENT: Adaptive Self-Configuring sEmsor Networks Topologies". In the *IEEE Transactions on Mobile Computing (TMC)*, Special Issue on Mission-Oriented Sensor Networks, Volume 3, Number 3, pages 272-285, July – September 2004.
16. Pierpaolo Bergamo, Shadnaz Asgari, Hanbiao Wang, Daniella Maniezo, Len Yip, Student Member IEEE, Ralph E. Hudson, Kung Yao, Fellow IEEE, and Deborah Estrin, Fellow IEEE. "Collaborative Sensor Networking Towards Real-Time Acoustical Beamforming in Free Space and Limited Reverberance", *IEEE Transactions On Mobile Computing*. July-September 2004. Vol. 3, No. 3.
17. Pavlin Radoslavov, Christos Papadopoulos, Ramesh Govindan and Deborah Estrin, "A Comparison of Application-Level and Router-Assisted Hierarchical Schemes for Reliable Multicast," *IEEE/ACM Transactions on Networking*, Vol. 12, No. 3, pp. 469--482, June 2004.
18. R. Szewczyk, E. Osterweil, J. Polastre, M. Hamilton, a. Mainwaring, D. Estrin, "Habitat Monitoring with Sensor Networks," *Communications of the ACM*, Vol. 47, No. 6, pp. 34-40, June 2004.
19. A. Helmy, S. Gupta, D. Estrin, "The STRESS Method for Boundary-Point Performance Analysis fo End-to-End Multicast Timer Suppression Mechanisms", *IEEE/ACM Transactions on networking*, February 2004. Vol.12, No.1.

20. Nirupama Bulusu, John Heidemann, Deborah Estrin and Tommy Tran, "Self-configuring Localization Systems: Design and Experimental Evaluation" ACM Transactions on Embedded Computing Systems (ACM TECS), Special issue on networked embedded systems, Vol. 3, No.1, pp. 24-60, February 2004.
21. Deepak Ganesan, Alberto Cerpa, Yan Yu, Wei Ye, Jerry Zhao and Deborah Estrin, "Networking Issues in Sensor Networks", in the Journal of Parallel and Distributed Computing (JPDC), Special issue on Frontiers in Distributed Sensor Networks, Elsevier Publishers, December 2003.
22. B. Greenstein, D. Estrin, R. Govindan, S. Ratnasamy, S. Shenker, "DIFS: A Distributed Index for Features in Sensor Networks," Elsevier Journal of Ad Hoc Networks, 2003.
23. J.C. Chen, L. Yip, J. Elson, H. Wang, D. Maniezzo, R.E. Hudson, K. Yao, and D. Estrin, "Coherent Acoustic Array Processing and Localization on Wireless Sensor Network" Proceedings of the IEEE, Vol. 91, No. 8, August 2003.
24. Sylvia Ratnasamy, Brad Karp, Scott Shenker, Deborah Estrin, Ramesh Govindan, Li Yin, and Fang Yu, "Data-Centric Storage in Sensornets with GHT, a Geographic Hash Table" Mobile Networks and Applications (MONET), Journal of Special Issues on Mobility of Systems, Users, Data, and Computing: Special Issue on Algorithmic Solutions for Wireless, Mobile, Ad Hoc and Sensor Networks , Kluwer, mid-2003.
25. Wang, H., Estrin, D., Girod, L., "Preprocessing in a Tiered Sensor Network for Habitat Monitoring" EURASIP Journal on Applied Signal Processing, Volume 2003, Number 4, pps. 392-401, March 2003.
26. Intanagonwiwat, C., Govindan, R., Estrin, D., Heidemann, J., Silva, F., "Directed Diffusion for Wireless Sensor Networking" IEEE/ACM Transactions on Networking, Volume 11, Number 1, pps. 2-16, February 2003.
27. Ganesan, D., Govindan, R., Shenker, S., Estrin, D., "Highly-Resilient, Energy-Efficient Multipath Routing in Wireless Sensor Networks" Mobile Computing and Communications Review, Volume 5, Number 4, pps. 10-24, October 2001.
28. Estrin, D., Handley, M., Heidemann, J., McCanne, S., Xu, Y., Yu, H., "Network Visualization with Nam, the VINT Network Animator" IEEE Computer Magazine, Volume 33, Number 11, pps. 63-68, November 2000.
29. Bulusu, N., Heidemann, J., Estrin, D., "GPS-less Low-Cost Outdoor Localization for Very Small Devices" IEEE Personal Communications, Volume 7, Number 5, pps. 28-34, October 2000.
30. Breslau, L., Estrin, D., Fall, K., Floyd, Heidemann, J., Helmy, A., Huang, P., McCanne, S., Varadhan, K., Xu, Y, Yu, H., "Advances in Network Simulation" IEEE Computer Magazine, Volume 33, Number 5, pps. 59-67, May 2000.
31. Reddy, A., Estrin, D., Govindan, R., "Large-Scale Fault Isolation" IEEE Journal on Selected Areas in Communications (May 2000) Special Issue on Network Management, Volume 18, Number 5, May 2000, pps. 1-24.
32. Estrin, D., Govindan, R., Heidemann, J.S., "Embedding the Internet: Introduction" Communications of the ACM Journal, Volume 43, Number 5, pps. 38-41, May 2000.
33. Varadhan, K., Govindan, R., Estrin, D., "Persistent Route Oscillations in Inter-Domain Routing" Computer Networks and ISDN Systems Journal, Volume 32, Number 1, pps. 1-23, January 2000.
34. Liu, C., Estrin, D., Shenker, S., Zhang, L., "Local Error Recovery in SRM: Comparison of Two Approaches" ACM/IEEE Transactions on Networks, Vol.6 (6), pps. 686-699, December 1998.
35. Govindan, R., Alaettinoglu, C., Varadhan, K., Estrin, D., "Route Servers for Inter-Domain Routing" Computer Networks and ISDN Systems, Vol. 30, pp.1157-1174, 1998.

36. Herzog, S., Shenker, S., Estrin, D., "Sharing the Cost of Multicast Trees: An Axiomatic Analysis" IEEE/ACM Transactions on Networking, Volume 5, Number 6, pps. 847-860, December 1997.
37. Deering, S., Estrin, D., Farinacci, D., Jacobson, V., Liu, C., Wei, L., "The PIM Architecture for Wide-Area Multicast Routing" IEEE/ACM Transactions on Networks, Volume 4, Number 2, pps. 153-162, April 1996.
38. Shenker, S., Clark, D., Estrin, D., Herzog, S., "Pricing in Computer Networks: Reshaping the Research Agenda" ACM Computer Communications Review Journal, Volume 26, Number 2, pps. 19-43, April 1996.
39. Cocchi, R., Estrin, D., Shenker, S., Zhang, L., "Pricing the Computer Networks: Motivation, Formulation and Example" IEEE/ACM Transactions on Networks Volume 1, Number 6, pps. 614-627, December 1993.
40. Zhang, L., Deering, S., Estrin, D., Shenker, S., Zappala, D., "RSVP: A New Resource ReSerVation Protocol" IEEE Network Magazine, Vol.7 (5), pps. 8-18, September 1993.
41. Estrin, D., Steenstrup, M., Tsudik, G., "Protocols for Route Establishment and Packet Forwarding Across Multi-Domain Internets" IEEE/ACM Transactions on Networks February 1993.
42. Danzig, P., Jamin, S., Caceres, R., Mitzel, D., Estrin, D., "An Empirical Workload Model for Driving Wide-Area TCP/IP Network Simulations" Journal of Internetworking Research and Experience Vol.3 (1), March 1992.
43. Breslau, L., Estrin, D., "Design and Evaluation of Inter-Domain Policy Routing Protocols" Internetworking Research and Experience Vol.2 (4), December 1991.
44. Estrin, D., and Tsudik, G., "Secure Control of Transit Internetwork Traffic" Computer Networks and ISDN Systems Vol.22, pp. 363-382, October 1991.
45. Hart, P., Estrin, D., "Inter-Organization Networks, Computer Integration, and Shifts in Interdependence: The Case of the Semiconductor Industry" ACM Transactions on Information Systems (October 1991) Vol.9 (4), October 1991.
46. Estrin, D., Tsudik, G., "An End-to-End Argument for Network Layer, Inter-Domain Access Controls" Journal of Internetworking Research and Experience (June 1991) Vol.2, pp. 71-85, June 1991.
47. Estrin, D., "Policy Requirements for Inter Administrative Domain Routing" Computer Networks and ISDN Systems (1991) Vol.22, pp. 179-191, 1991.
48. Estrin, D., Steenstrup, M., "Inter-Domain Policy Routing: Overview of Architecture and Protocols" ACM SIGCOMM Computer Communication Review (January 1991)Vol.21(1), pp. 71-78, January 1991.
49. Estrin, D., Mogul, J., Tsudik, G., "Visa Protocols for Controlling InterOrganizational Datagram Flow" IEEE Journal on Selected Areas in Communications (May 1989)Vol.7(4), May 1989
50. Estrin, D., "Interconnection Protocols for Interorganization Networks" IEEE Journal. on Selected Areas in Communications (December 1987) Vol.SAC-5(9), pp. 1480-1491, December 1987.
51. Estrin, D., "Interconnection of Private Networks: A Link between Industrial and Telecommunications Policy" Telecommunications Policy (September 1987) pp.247-258, September 1987.
52. Estrin, D., "Controls for Interorganization Networks" IEEE Transactions on Software Engineering (February 1987) Vol.SE-13(2), pps. 249-261, February 1987.
53. Estrin, D., "Inter-Organizational Networking: Stringing Wires Across Administrative Boundaries" Computer Networks and ISDN Systems (September 1985) Vol.9, pp.281-295, September 1985.

54. Estrin, D., Sirbu, M., "Cable Television Networks as an Alternative to the Local Loop" *Journal of Telecommunications Networks* (1984) Vol.3 (2), pp. 103-115, Summer 1984.

Refereed Conference Publications

1. N. Ramanathan, T. Schoelhammer, E. Kohler, K. Whitehouse, T. Harmon, D. Estrin., "Suelo: Human-assisted Sensing for Exploratory Soil Monitoring Studies," To appear in proceedings of the 7th ACM Conference on Embedded Networked Sensor Systems (SenSys 2009), Berkeley, CA, November 4-6, 2009.
2. Shilton, Katie, Burke, J., Estrin, D., Govindan, R., Kang, J., "Designing the Personal Data Stream: Enabling Participatory Privacy in Mobile Personal Sensing," To appear in proceedings of the 37th Research Conference on Communication, Information and Internet Policy (TPRC), Arlington, VA, September 25-27, 2009.
3. J. Ryder, B. Longstaff, S. Reddy, D. Estrin. "Ambulation: A Tool for Monitoring Mobility Patterns Over Time Using Mobile Phones" IEEE International Conference on Social Computing: Workshop on Social Computing with Mobile Phones & Sensors: Modeling, Sensing and Sharing, Vancouver, Canada, August 29-31, 2009
4. M. Mun, S. Reddy, K. Shilton, N. Yau, J. Burke, D. Estrin, M. Hansen, E. Howard, R. West, and P.Boda, "PEIR, the Personal Environmental Impact Report, as a Platform for Participatory Sensing Systems Research" In Proceedings of the 7th Annual International Conference on Mobile Systems, Applications and Services, ACM Mobisys 2009, Krakow, Poland, June 22-25, 2009.
5. S. Reddy, K. Shilton, J. Burke, D. Estrin, M. Hansen, M. Srivastava, "Using Context Annotated Mobility Profiles to Recruit Data Collectors in Participatory Sensing" in proceedings of the 4th International Symposium on Location and Context Awareness, LOCA, Tokyo Japan, May 2009.
6. Lukac, M., Davis, P., Clayton, R., Estrin, D., "Recovering Temporal Integrity with Data Driven Time Synchronization," in proceedings of the 8th ACM/IEEE International Conference on Information Processing in Sensor Networks, IPSN 2009, San Francisco, CA, April 13-16, 2009.
7. Whitesell, K., Kutler, B., Ramanathan, N., Estrin, D., "A System for Determining Indoor Air Quality from Images of an Air Sensor Captured on Cell Phones," in Proceedings of the Workshop on Applications, Systems, and Algorithms for Image Sensing, ImageSense'08, Raleigh, North Carolina, November 4, 2008.
8. Hyman, J., Hansen, M., Graham, E., Estrin, D., "Estimating the Spectral Reflectance of Natural Imagery Using Color Image Features," in Proceedings of the Workshop on Applications, Systems, and Algorithms for Image Sensing, ImageSense'08, Raleigh, North Carolina, November 4, 2008.
9. Hicks, J., Paek, J., Coe, S., Govindan, R., Estrin, D., "An Easily Deployable Wireless Imaging System," in Proceedings of the Workshop on Applications, Systems, and Algorithms for Image Sensing, ImageSense'08, Raleigh, North Carolina, November 4, 2008.
10. Reddy, S., Shilton, K., Burke, J., Estrin, D., Hansen, M., Srivastava, M., "Evaluating Participation and Performance in Participatory Sensing," in Proceedings of International Workshop on Urban, Community, and Social Applications of Networked Sensing Systems - UrbanSense08, Raleigh, North Carolina, November 4, 2008.
11. Shilton, K., Ramanathan, N., Samanta, V., Burke, J., Estrin, D., Hansen, M. and Srivastava, M., "Participatory Design of Urban Sensing Networks: Strengths and Challenges," in Proceedings of the Participatory Design Conference, Bloomington, Indiana, October 1-4, 2008

12. Sasank Reddy, Jeff Burke, Deborah Estrin, Mark Hansen, Mani Srivastava, "Determining Transportation Mode On Mobile Phones," in Proceedings of the 12th IEEE International Symposium on Wearable Computers (ISWC), Pittsburgh, Pennsylvania, , September 28 – October 1, 2008.
13. Min Y. Mun, Deborah Estrin, Jeff Burke and Mark Hansen, "Parsimonious Mobility Classification using GSM and WiFi Traces," In Proceedings of the Fifth Workshop on Embedded Networked Sensors (HotEmNets 2008) Charlottesville, VA, June 2-3, 2008.
14. Michael Allen, Lewis Girod, Ryan Newton, Samuel Madden, Daniel Blumstein, Deborah Estrin, "VoxNet: An Interactive, Rapidly-Deployable Acoustic Monitoring Platform," in Proceedings of the Information Processing in Sensor Networks (IPSN 08) St. Louis, Missouri, April 22-24, 2008.
15. Katie Shilton, Jeff Burke, Deborah Estrin, Mark Hansen, and Mani B. Srivastava, "Participatory Privacy in Urban Sensing," in Proceedings of the International Workshop on Mobile Device and Urban Sensing (MODUS 2008), St. Louis, Missouri, April 21, 2008.
16. M. Allen, E. Graham, S. Ahmadian, T. Ko, E. Yuen, L. Girod, M. Hamilton and D. Estrin, "Interactive Environmental Sensing: Signal and Image Processing Challenges" in Proceedings of the ICASSP 2008: IEEE International Conference on Acoustics, Speech and Signal Processing, Las Vegas, NV, USA, March 30 – April 4, 2008.
17. E. Agapie, G. Chen, D. Houston, E. Howard, J. Kim, M. Y. Mun, A. Mondschein, S. Reddy, R. Rosario, J. Ryder, A. Steiner, J. Burke, D. Estrin, M. Hansen, M. Rahimi, "Seeing Our Signals: Combining location traces and web-based models for personal discovery" in Proceedings of the 9th IEEE Workshop on Mobile Computing Systems and Applications (HotMobile 2008), Napa Valley, CA, February 25-26, 2008.
18. T. Ko, Z. Charbiwala, S. Ahmadian, M. Rahimi, M. Srivastava, S. Soatto, and D. Estrin "Exploring Tradeoffs in Accuracy, Energy and Latency of Scale Invariant Feature Transform in Wireless Camera Networks" First ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC 2007), Vienna, Austria, September 25-28, 2007.
19. J. Hyman, E. Graham, M. Hansen and D. Estrin "Imagers as sensors: Correlating plant CO2 uptake with digital visible-light imagery," Fourth International Workshop on Data Management for Sensor Networks (DMSN 2007), Vienna, Austria, September 24, 2007.
20. Sasank Reddy, Andrew Parker, Josh Hyman, Jeff Burke, Deborah Estrin, and Mark Hansen, "Image Browsing, Processing, and Clustering for Participatory Sensing: Lessons From a DietSense Prototype" in Proceedings of the Fourth Workshop on Embedded Networked Sensors (EmNets 2007), Cork, Ireland, June 25-26, 2007.
21. Michael Allen, Lewis Girod, and Deborah Estrin. "Acoustic Laptops as a research enabler," in Proceedings of the Fourth Workshop on Embedded Networked Sensors (EmNets 2007), Cork, Ireland, June 25-26, 2007.
22. Stathopoulos, T., Lukac, M., McIntire, D., Heidemann, J., Estrin, D., and Kaiser, W., "End-to-end Routing for Dual-Radio Sensor Networks," IEEE Infocom, 2007, Anchorage, Alaska, May 2007.
23. Estrin, D., "Reflections on Wireless Sensing systems: From Ecosystems to Human Systems" IEEE Radio and Wireless Symposium. Long Beach, CA, January, 2007.
24. Mohammad Rahimi, Shaun Ahmadian, David Zats, Juan Garcia, Mani Srivastava, Deborah Estrin, "Magic of Numbers in Networks of Wireless Image Sensors," Workshop on Distributed Smart Cameras (DSC), Boulder Colorado, 2006.
25. J. Burke, D. Estrin, M. Hansen, A. Parker, N. Ramanathan, S. Reddy, M. B. Srivastava. "Participatory Sensing," World Sensor Web Workshop, ACM Sensys 2006, Boulder, Colorado, 2006.
26. Omprakash Gnawali, Ben Greenstein, Ki-Young Jang, August Joki, Jeongyeup Paek, Marcos Vieira, Deborah Estrin, Ramesh Govindan, and Eddie Kohler. "The Tenet Architecture for Tiered Sensor Networks. "ACM Sensys, November 2006.

27. Ben Greenstein, Christopher Mar, Alex Pesterev, Shahin Farshchi, Eddie Kohler, Jack Judy, and Deborah Estrin. "Capturing High-Frequency Phenomena Using a Bandwidth-Limited Sensor Network," ACM SenSys, November 1-3, 2006.
28. Andrew Parker, Sasank Reddy, Thomas Schmid, Ganeriwal Saurabh, Devin Chang, Jeff Burke, Mark Hansen, Mani Srivastava, Deborah Estrin, Vern Paxson, and Mark Allman. "Network System Challenges in Selective Sharing and Verification for Personal , Social, and Urban-Scale Sensing Applications," In Proceedings of the Fifth Workshop on Hot Topics in Networks (HotNets-V), Irvine, California, November 2006.
29. Dong Lee, Hyungjin Kim, Steven Tu, Mohammad Rahimi, Deborah Estrin and John D. Villasenor, " Energy-optimized image communication on resource-constrained sensor platforms," IEEE/ACM International Conference on Information Processing in Sensor Networks: Special Track on Sensor Platforms, Tools and Design Methods (SPOTS), November 2006.
30. Kohler, M. D., T. H. Heaton, R. Govindan, P. Davis, and D. Estrin. "Using embedded wired and wireless seismic networks in the moment-resisting steel frame Factor building for damage identification," Proceedings of the 4th China-Japan-U.S. Symposium on Structural Control and Monitoring, October 16-17, 2006.
31. Lewis Girod, Martin Lukac, Vlad Trifa, and Deborah Estrin. "The Design and Implementation of a Self-Calibrating Distributed Acoustic Sensing Platform" 4th ACM Conference on Embedded Networked Sensor Systems (SenSys 2006), October 2006.
32. Martin Lukac, Lewis Girod, and Deborah Estrin. "Disruption Tolerant Shell," ACM SIGCOMM Workshop on Challenged Networks, Pisa, Italy, September 2006.
33. Kevin Chang, Nathan Yau, Mark Hansen, and Deborah Estrin, "SensorBase.org – A Centralized Repository to Slog Sensor Network Data," in Proceedings of the International Conference on Distributed Computing in Sensor Network (DCOSS)/Euro-American Workshop on Middleware for Sensor Networks (EAWMS), San Francisco, CA, June 2006.
34. N. Ramanathan, L. Balzano, D. Estrin, T. Harmon, M. Hansen, J. Jay, B. Kaiser, and G. Sukhatme. "Designing Wireless Sensor Networks as a Shared Resource for Sustainable Development," in Proceedings of the First International Conference on Information and Communication Technologies and Development, (ICTD) 2006.
35. Richard Pon, Maxim Batalin, Victor Chen, Aman Kansal, Duo Liu, Mohammad Rahimi, Lisa Shirachi, Arun Somasundara, Yan Yu, Mark Hansen, William Kaiser, Mani Srivastava, Gaurav Sukhatme, Deborah Estrin, "Coordinated Static and Mobile Sensing for Environmental Monitoring," IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), 2005.
36. Richard Pon, Maxim A. Batalin, Jason Gordon, Aman Kansal, Duo Liu, Mohammad Rahimi, Lisa Shirachi, Yan Yu, Mark Hansen, William J. Kaiser, Mani Srivastava, Gaurav Sukhatme, and Deborah Estrin, "Networked Infomechanical Systems: A Mobile Embedded Networked Sensor Platform", IPSN 2005, Special track on Platform Tools and Design Methods for Network Embedded Sensors (SPOTS), 2005.
37. N. Ramanathan, K. Chang, R. Kapur, L. Girod E. Kohler, D. Estrin, "Sympathy for the Sensor Network Debugger", Sensys, 2005. Third ACM Conference on Embedded Networked Sensor Systems (SenSys), November 2-4, 2005.
38. Mohammad Rahimi, Rick Baer, Obimdinachi I. Iroezi, Juan C. Garcia, Jay Warrior, Deborah Estrin, and Mani Srivastava, "Cyclops: In Situ Image Sensing and Interpretation". Third ACM Conference on Embedded Networked Sensor Systems (SenSys), November 2-4, 2005.
39. M. Rahimi, M. Hansen, B. Kaiser, G. Sukhatme, D. Estrin, "Adaptive sampling for environmental field estimation using robotic sensors," IEEE/RSJ International Conference on Intelligent Robots and Systems, Edmonton, Canada, August 2005.

40. Maxim Batalin, William Kaiser, Richard Pon, Gaurav S. Sukhatme, Gregory J. Pottie, Yan Yu, Jason Gordon, Mohammad H. Rahimi, and Deborah Estrin, "Task Allocation for Event-Aware Spatiotemporal Sampling of Environmental Variables", IEEE/RSJ International Conference on Intelligent Robots and Systems, Edmonton, Canada, August 2005.
41. H. Wang, C.E. Chen, A. Ali, S. Asgari, R.E. Hudson, K. Yao, D. Estrin, C. Taylor, "Acoustic Sensor Networks for Woodpecker Localization" In the Proceedings of SPIE Conference on Advanced Signal Processing Algorithms, Architectures and Implementation, August 2005.
42. D. Ganesan, B. Greenstein, D. Perelyubskiy, D. Estrin, J. Heidemann, "Multi-Resolution Storage and Search in Sensor Networks," in ACM Transactions on Storage, Vol. 1, No. 3, pp. 277-315, August 2005.
43. N. Ramanathan, M. Yarvis, J. Chhabra, N. Kurshalnagar, L. Krishnamurthy, D. Estrin, "A Stream-Oriented Power Management Protocol for Low Duty Cycle Sensor Network Applications, 2nd IEEE Workshop on Embedded Sensor Networks (EmNets), Sydney, Australia, June 2005.
44. Alberto Cerpa, Jennifer L. Wong, Miodrag Potkonjak, and Deborah Estrin, "Temporal Properties of Low Power Wireless Links: Modeling and Implications on Multi-Hop Routing". In Proceedings of the Sixth ACM International Symposium on Mobile Ad Hoc Networking and Computing (MOBIHOC '05), Urbana, Champaign, Illinois, May 25-28 2005.
45. Alberto Cerpa, Jennifer L. Wong, Louane Kuang, Miodrag Potkonjak, and Deborah Estrin, "Statistical Model of Lossy Links in Wireless Sensor Networks", in Proceedings of the ACM/IEEE Fourth International Conference on Information Processing in Sensor Networks (IPSN05), in Los Angeles, California , April 25-27 2005.
46. Pon R., Batalin., Gordon J., Rahimi M., Kaiser W., Sukhatme., Srivastava M., and Estrin D, "Networked Infomechanical Systems: A Mobile Wireless Sensor Network Platform," IEEE/ACM Fourth International Conference on Information Processing in Sensor Networks, pp. 376-381, April 2005.
47. N. Xu, S. Rangwala, K. Chintalapudi, D. Ganesan, A. Broad, R. Govindan, D. Estrin, "A Wireless Sensor Network for Structural Monitoring". In Proceedings of the ACM Conference on Embedded Networked Sensor Systems (SenSys04), November 2004.
48. Nithya Ramanathan, Eddie Kohler, Lewis Girod, and Deborah Estrin, "Sympathy: A Debugging System for Sensor Networks". Workshop Record of the 1st IEEE Workshop on Embedded Networked Sensors (EmNetS-I), Tampa, Florida, November 2004.
49. Maxim Batalin, Mohammad Rahimi, Yan Yu, D. Liu, Aman Kansal, Gaurav S. Sukhatme, William J. Kaiser, Mark Hansen, Gregory J. Pottie, Mani B. Srivastava, and Deborah Estrin. "Call and Response: Experiments in Sampling the Environment". In Proceedings of the second ACM Conference on Embedded Networked Sensor Systems (SenSys), pp. 25-38, 2004.
50. L. Girod, T. Stathopoulos, N. Ramanathan, J. Elson, D. Estrin, E. Osterweil, and T. Schoellhammer, "A System for Simulation, Emulation, and Deployment of Heterogeneous Sensor Networks," In Proceedings of the second ACM Conference on Embedded Networked Sensor Systems (SenSys), 2004.
51. B. Greenstein, E. Kohler, D. Estrin, "A Sensor Network Application Construction Kit (SNACK), in the Proceedings of the second ACM Conference on Embedded Networked Sensor Systems (SenSys), 2004.
52. Yan Yu, Deborah Estrin, Ramesh Govindan, Mohammad Rahimi, "Using More Realistic Data Models to Evaluate Sensor Network Data Processing Algorithms", First IEEE Workshop on Embedded Networked Sensors 2004
53. Thanos Stathopoulos, Rahul Kapur, Deborah Estrin, John Heidemann, Lixia Zhang, "Application-Based Collision Avoidance in Wireless Sensor Networks". In IEEE Workshop of Embedded Networked Sensors (EmNet) 2004.

54. T. Schoellhammer, B. Greenstein, E. Osterweil, M. Wimbrow, D. Estrin, "Lightweight Temporal Compression of Microclimate Datasets", EmNets-I 2004.
55. B. Greenstein, E. Kohler, D. Culler, D. Estrin, "Distributed Techniques for Area Computation in Sensor Networks", The 1st IEEE Workshop on Embedded Networked Sensors, EmNets-I 2004.
56. Aman Kansal, Mohammad Rahimi, William J. Kaiser, Mani B. Srivastava, Gregory J. Pottie, and Deborah Estrin, "Controlled Mobility for Sustainable Wireless Networks". In Proceedings of IEEE Sensor and Ad Hoc Communications and Networks (SECON) 2004.
57. Mohammad Rahimi, Mark Hansen, William J. Kaiser, Gaurav S. Sukhatme, Deborah Estrin, "Adaptive Sampling for Environmental Field Estimation Using Robotic Sensors". In Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, Edmonton, Canada, August 2004.
58. A. Kansal, A. Somasundara, D. Jea, M.B. Srivastava and D. Estrin, "Intelligent Fluid Infrastructure for Embedded Networking," Proceedings of ACM MobiSys, June 2004.
59. Lewis Girod, Jeremy Elson, Alberto Cerpa, Thanos Stathopoulos, Nithya Ramanathan, Deborah Estrin, "EmStar: a Software Environment for Developing and Deploying Wireless Sensor Networks", In Proceedings of the 2004 USENIX Technical Conference, June 2004. (Also available as CENS Technical Report 0009, March 24, 2003.)
60. Richard Pon, Maxim Batalin, Mohammad Rahimi, Yan Yu, Deborah Estrin, Gregory J. Pottie, Mani B. Srivastava, Gaurav S. Sukhatme, and William J. Kaiser, "Self-Aware Distributed Embedded Systems". In Proceedings of the 10th IEEE International Workshop of Future Trends of Distributed Computing Systems, May 2004, pp. 102-107.
61. Hanbiao Wang, Len Yip, Kung Yao and Deborah Estrin, "Lower Bounds of Localization Uncertainty in Sensor Networks," Proceedings of IEEE International Conference on Acoustics, Speech, May 2004.
62. Mohammad H. Rahimi, Richard Pon, William Kaiser, Gaurav S. Sukhatme, Deborah Estrin, and Mani Srivastava, "Adaptive Sampling for Environmental Robotics". In Proceedings of IEEE International Conference on Robotics and Automation, pp. 3537-3544, April 2004.
63. Hanbiao Wang, Kung Yao, Greg Pottie, Deborah Estrin, "Entropy-based Sensor Selection in Localization". In Proceedings of the Symposium on Information Processing in Sensor Networks (IPSN '04), Berkeley, California, April 2004.
64. Deepak Ganesan, Sylvia Ratnasamy, Hanbiao Wang and Deborah Estrin, "Coping with irregular spatio-temporal sampling in sensor networks" 2nd Workshop on Hot Topics in Networks (HotNets-II), November 2003.
65. Mohammad Rahimi, Hardik Shah, Gaurav Sukhatme, John Heidemann, and Deborah Estrin, "Studying the Feasibility of Energy Harvesting in a Mobile Sensor Network". In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA-03), Taiwan, September 14-22, 2003.
66. John Heidemann and Fabio Silva and Deborah Estrin, "Matching Data Dissemination Algorithms to Application Requirements" Proceedings of the First ACM Conference on Embedded Networked Sensor Systems (SenSys 2003).
67. Deepak Ganesan, Ben Greenstein. Denis Perelyubskiy, Deborah Estrin and John Heidemann, "An Evaluation of Multi-resolution Storage for Sensor Networks" Proceedings of the First ACM Conference on Embedded Networked Sensor Systems (SenSys 2003).
68. Benjamin Greenstein, Deborah Estrin, Ramesh Govindan, Sylvia Ratnasamy, Scott Shenker, "DIFS: A Distributed Index for Features in Sensor Networks" Proceedings of First IEEE International Workshop on Sensor Network Protocols and Applications Anchorage, AK. May 2003.

69. Mohammad Rahimi, Hardik Shah, Gaurav Sukhatme, John Heidemann, and Deborah Estrin, "Energy Harvesting in Mobile Sensor Networks" Proceedings of the IEEE International Conference on Robotics and Automation, May 2003.
70. Jerry Zhao, Ramesh Govindan and Deborah Estrin, "Computing Aggregates for Monitoring Wireless Sensor Networks" Proceedings of First IEEE International Workshop on Sensor Network Protocols and Applications Anchorage, AK. May 2003.
71. Hanbiao Wang, Jeremy Elson, Lewis Girod, Deborah Estrin, and Kung Yao, "Target Classification and Localization in Habitat Monitoring" In Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2003), Hong Kong, China. April 2003.
72. J.C. Chen, L. Yip, H. Wang, D. Maniezzo, R.E. Hudson, J. Elson, K. Yao, and D. Estrin "DSP Implementation of a Distributed Acoustical Beamformer on a Wireless Sensor Platform" Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2003), Hong Kong, China. April 2003
73. Vladimir Bychkovskiy, Seapahn Megerian, Deborah Estrin, and Miodrag Potkonjak, "A Collaborative Approach to In-Place Sensor". In Proceedings of the 2nd International Workshop on Information Processing in Sensor Networks (IPSN'03), Volume 2634 of Lecture Notes in Computer Science, pages 301-316. Springer-Verlag Inc., 2003.
74. Elson, J., Girod, L., Estrin, D., "Fine-Grained Network Time Synchronization Using Reference Broadcasts" Proceedings of the 5th Symposium on Operating Systems Design and Implementation (OSDI 2002), Boston, MA, pps. 1-17, December 9-11, 2002.
75. Ganesan, D., Estrin, D., Heidemann, J., "DIMENSIONS: Why do we need a new Data Handling architecture for Sensor Networks?" Proceedings of the First Workshop on Hot Topics in Networks (HotNets-I), Princeton, New Jersey, pps. 1-6, October 28-29, 2002.
76. Bulusu, N., Bychkovskiy, V., Estrin, D., Heidemann, J., "Scalable, Ad Hoc Deployable RF-based Localization" Proceedings of the Grace Hopper Conference on Celebration of Women in Computing, Vancouver, Canada, pps. 1-5, October 9-12, 2002.
77. Braginsky, D., Estrin, D., "Rumor Routing Algorithm For Sensor Networks" Proceedings of the First ACM International Workshop on Wireless Sensor Networks and Applications (WSNA 2002), pps. 1-12, September 28, 2002.
78. Ratnasamy, S., Karp, B., Yin, L., Yu, F., Estrin, D., Govindan, R., Shenker, S., "GHT: A Geographic Hash Table for Data-Centric Storage" Proceedings of the First ACM International Workshop on Wireless Sensor Networks and Applications (WSNA2002), Atlanta, Georgia, September 28, 2002.
79. Ratnasamy, S., Estrin, D., Govindan, R., Karp, B., Shenker, S., Yin, L., Yu, F., "Data-Centric Storage in Sensornets" Proceedings of the 1st Workshop on Sensor Networks and Applications (WSNA), Atlanta, GA, pps. 1-14, September 28, 2002.
80. Girod, L., Bychkovskiy, V., Elson, J., Estrin, D., "Locating tiny sensors in time and space: A case study" Proceedings of the International Conference on Computer Design (ICCD 2002), Freiburg, Germany, pps. 1-6, September 16-18, 2002.
81. Elson, J., Girod, L., Estrin, D., "Short Paper: A Wireless Time-Synchronized Cots Sensor Platform Part I: System Architecture" Proceedings of the IEEE CAS Workshop on Wireless Communications and Networking, Pasadena, CA, pps. 1-4, September 5-6, 2002.
82. Krishnamachari, B., Estrin, D., Wicker, S., "The Impact of Data Aggregation in Wireless Sensor Networks" Proceedings of the International Workshop on Distributed Event Based Systems (DEBS), Vienna, Austria, pps. 1-4, July 2-3, 2002.
83. Intanagonwiwat, C., Estrin, D., Govindan, R., Heidemann, J.S., "Impact of Network Density on Data Aggregation in Wireless Sensor Networks" Proceedings of the 22nd International Conference on Distributed Computing Systems - ICDCS'2002, Vienna, Austria, pps. 457-458, July 2-5, 2002.

84. Ye, W., Heidemann, J., Estrin, D., "An Energy-Efficient MAC Protocol for Wireless Sensor Networks" Proceedings of the 21st International Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM 2002), New York, New York, pps. 1-10, June 23-27, 2002.
85. Cerpa, A., Estrin, D., "ASCENT: Adaptive Self-Configuring sEnor Networks Topologies" Proceedings of the 21st International Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM 2002), New York, New York, pps. 1-10, June 23-27, 2002.
86. Zhao, Y., Govindan, R., Estrin, D., "Residual Energy Scans for Monitoring Wireless Sensor Networks" Proceedings of the IEEE Wireless Communications and Networking Conference (WCNC'02), Orlando, FL, pps. 1-16, March 17-21, 2002.
87. Ganesan, D., Govindan, R., Shenker, S., Estrin, D., "Highly-Resilient, Energy-Efficient Extended Abstract Multipath Routing in Wireless Sensor Networks" ACM Symposium on Mobile Ad Hoc Networking & Computing, MOBIHOC 2001, Long Beach, CA, pps. 1-13, October 4-5, 2001. [One of the Best Poster Papers from MOBIHOC 2001]
88. Bulusu, N., Estrin, D., Heidemann, J., "Tradeoffs in Location Support Systems: The Case for Quality-Expressive Location Models for Applications" Proceedings of the Ubicomp 2001 Workshop on Location Modeling, Atlanta, GA, pps. 1-6, October 2001.
89. Elson, J., Estrin, D., "Random, Ephemeral Transaction Identifiers in Dynamic Sensor Networks" Proceedings of the 21st International Conference on Distributed Computing Systems (ICDCS-21), Phoenix, AZ, pps. 1-13, October 2001.
90. Girod, L., Estrin, D., "Robust Range Estimation Using Acoustic and Multimodal Sensing" Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2001), Maui, Hawaii, pps. 1-9, October 2001.
91. Heidemann, J., Silva, F., Intanagonwiwat, C., Govindan, R., Estrin, D., Ganesan, D., "Building Efficient Wireless Sensor Networks with Low-Level Naming" Proceedings of the Symposium on Operating Systems Principles (SOSP), Lake Louise, Banff, Canada, pps. 1-14, October 2001.
92. Ya, X., Heidemann, J., Estrin, D., "Geography-informed Energy Conservation for Ad Hoc Routing" Proceedings of the ACM SIGMOBILE 7th International Conference on Mobile Computing, Rome, Italy, July 16-21, 2001.
93. Bulusu, N., Estrin, D., Girod, L., Heidemann, J., "Scalable Coordination for Wireless Sensor Networks: Self-Configuring Localization Systems" Proceedings of the 6th International Symposium on Communication Theory and Applications (ISCTA 2001), Ambleside, Lake District, UK, pps. 1-6, July 2001.
94. Estrin, D., Girod, L., Pottie, G., Srivastava, M., "Instrumenting The World With Wireless Sensor Networks" Proceedings of the International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2001) (May 2001) Salt Lake City, Utah, pps. 1-4, May 2001.
95. Ye, W., Vaughan, R.T., Sukhatme, G.S., Heidemann, J., Estrin, D., Mataric, M.J., "Evaluating Control Strategies for Wireless-Networked Robots Using an Integrated Robot and Network Simulation" Proceedings of the IEEE International Conference on Robotics and Automation (ICRA 2001), Seoul, Korea, May 2001.
96. Radoslavov, P., Papadopoulos, C., Govindan, R., Estrin, D., "A Comparison of Application-Level and Router-Assisted Hierarchical Schemes for Reliable Multicast" Proceedings of the INFOCOM 2001 Conference, Anchorage, Alaska, pps. 229-238, April 22-26, 2001.
97. Elson, J., Estrin, D., "Time Synchronization for Wireless Sensor Networks" Proceedings of the 2001 International Parallel and Distributed Processing Symposium (IPDPS), Workshop on Parallel and Distributed Computing Issues in Wireless Networks and Mobile Computing, San Francisco, CA, pps. 1-6, April 2001.

98. Cerpa, A., Elson, J., Estrin, D., Girod, L., Hamilton, M. Zhao, J., "Habitat Monitoring: Application Driver for Wireless Communications Technology" Proceedings of the 1st ACM SIGCOMM Workshop on Data Communications in Latin America and the Caribbean, San Jose, Costa Rica, pps. 1-8, April 3-5, 2001.
99. Bulusu, N., Heidemann, J., Estrin, D., "Adaptive Beacon Placement" Proceedings of the 21st International Conference on Distributed Computing Systems (ICDCS-21), Phoenix, Arizona, pps. 1-10, April 2001.
100. Heidemann, J., Bulusu, N., Elson, J., Intanagonwiwat, C., Lan, K.C., Xu, Y., Ye, W., Estrin, D., Govindan, R., "Effects of Detail in Wireless Network Simulation" Proceedings of the SCS Communication Networks and Distributed Systems Modeling and Simulation Conference, Phoenix, AZ, pps. 1-10, January 2001.
101. Kumar, S., Alaettinoglu, C., Estrin, D., "Scalable Object-tracking through Unattended Techniques (SCOUT)" Proceedings of the 8th IEEE International Conference on Network Protocols [IEEE ICNP-2000], Osaka, Japan, pps. 253-263, November 14-17, 2000
102. Sukhatme G.S., Estrin D., Caron D., Mataric M. and Requicha A., "Proposed Approach for Combining Distributed Sensing, Robotic Sampling, and Offline Analysis for in situ Marine Monitoring" Proceedings of Advanced Environmental and Chemical Sensing Technology – SPIE 2000, Vol. 4205, November 6-8, 2000.
103. Helmy, A., Gupta, S.K.S., Estrin, D., Cerpa, A., Yu, Y., "Systematic Performance Evaluation of Multipoint Protocols" Proceedings of the FORTE 2000 Conference, Pisa, Italy, pps. 189-204, October 10-13, 2000.
104. Reddy, A., Estrin, D., Govindan, R., "Fault Isolation in Multicast Trees" Proceedings of the ACM SIGCOMM'2000 Conference, Stockholm, Sweden, pps. 1-26, August 28-September 1, 2000.
105. Intanagonwiwat, C., Govindan, R., Estrin, D., "Directed Diffusion: A Scalable and Robust Communication Paradigm for Sensor Networks" Proceedings of the Sixth Annual International Conference on Mobile Computing & Networking - MOBICOM'2000, Boston, MA, pps. 56-67, August 6-11, 2000.
106. Rejaie, R., Yu, H., Handley, M., Estrin, D., "Multimedia Proxy Caching Mechanism for Quality Adaptive Streaming Applications in the Internet" Proceedings of the IEEE INFOCOM 2000 Conference on Computer Communications, Tel Aviv, Israel, March 26-30, 2000.
107. Liu, C.G., Estrin, D., Shenker, S., Zhang, L., "Recovery Timer Adaptation in SRM" Proceedings of the International Conference in Computer Communications, ICC'99, Tokyo, Japan, pps. 1-11, September 1999.
108. Rejaie, R., Handley, M., Estrin, D., "Quality Adaptation for Congestion Controlled Video Playback over the Internet" Proceedings of ACM SIGCOMM '99, Cambridge, MA, August 30-September 3, 1999.
109. Estrin, D., Govindan, R., Heidemann, J., Kumar, S., "Next Century Challenges: Scalable Coordination in Sensor Networks" Proceedings of the 5th Annual International Conference on Mobile Computing and Networks (MobiCOM'99), Seattle, Washington, pps. 263-270, August 15-20, 1999.
110. Govindan, R., Faber, T., Heidemann, J., Estrin, D., "Ad-Hoc Smart Environments" Proceedings of the DARPA/NIST Workshop on Smart Environments, Atlanta, Georgia, pps. 1-3, June 1999
111. Rejaie, R., Handley, M., Yu, H., Estrin, D., "Proxy Caching Mechanism for Multimedia Playback Streams in the Internet" Proceedings of 4th International Web Cache Workshop, San Diego, CA, March 31-April 2, 1999.
112. Rejaie, R., Handley, M., Estrin, D., "RAP: An End-to-end Rate-based Congestion Control Mechanism for Realtime Streams in the Internet" Proceedings of the IEEE Infocom 1999 Conference, New York, N.Y., March 23-25, 1999.

113. Estrin, D., Handley, M., Helmy, A., Huang, P., Thaler, D., "A Dynamic Bootstrap Mechanism for Rendezvous-based Multicast Routing" Proceedings of the IEEE Infocom 1999 Conference, New York, N.Y., March 23-25, 1999.
114. Helmy, A., Estrin, D., Gupta, S., "Fault-oriented Test Generation for Multicast Routing" Proceedings of the FORTE/PSTV'98 Conference, Paris, France, November 1998.
115. Kumar, S., Radoslavov, P., Thaler, D., Alaettinoglu, C., Estrin, D., Handley, M., "The ASC/BGMP Architecture for Inter-Domain Multicast Routing" Proceedings of the ACM Sigcomm 1998 Conference, Vancouver, British Columbia, Canada, August 31-September 4, 1998.
116. Helmy, A., Estrin, D., "Simulation-based STRESS Testing Case Study: A Multicast Routing Protocol" Proceedings of the Sixth International Symposium on Modeling Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS'98), Montreal, Canada, July 19-24, 1998.
117. Huang, P., Estrin, D., Heidemann, J., "Enabling Large-Scale Simulations: Selective Abstraction Approach to the Study of Multicast Protocols" Proceedings of the Sixth International Symposium on Modeling Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS 1998), Montreal, Canada, July 19-24, 1998.
118. Heidemann, J., Govindan R., and Estrin, D., "Configuration Challenges for Smart Spaces" Proceedings of the DARPA/NIST Smart Spaces Workshop, July 1998.
119. Varadhan, K., Estrin, D., Floyd, S., "Impact of Network Dynamics on End-to-End Protocols: Case Studies in Reliable Multicast" Proceedings of the 3rd IEEE Symposium on Computers and Communications (ISCC'98) Conference, Athens, Greece, June 30-July 2, 1998
120. Helmy, A., Estrin, D., "STRESS Testing Applied to a Multicast Routing Protocol" Proceedings of the Sixth International Symposium on Modeling, Analysis, and Simulation, Ottawa, Canada, December 1997.
121. Huang, P., Estrin, D., Heidemann, J., "Enabling Large-Scale Simulations: Selective Abstraction Approach to the Study of Multicast Protocols" Proceedings of the Sixth International Symposium on Modeling, Analysis, and Simulation, Ottawa, Canada, December 1997.
122. Sharma, P., Estrin, D., Floyd, S., Jacobson, V., "Scalable Timers for Soft State Protocols" Proceedings of IEEE Infocom '97, Kobe, Japan, April 7-11, 1997.
123. Mitzel, D., Estrin, D., Shenker, S., Zhang, L., "A Study of Reservation Dynamics in Integrated Services Packet Networks" Proceedings of IEEE Infocom '96, San Francisco, CA, March 1996.
124. Wei, L., Estrin, D., "Multicast Routing in Dense and Sparse Modes: Simulation Study of Tradeoffs and Dynamics" Proceedings of the 1995 International Conference on Computer Communications and Networks (ICCCN), Las Vegas, Nevada, September 1995.
125. Wei, L., Estrin, D., "The Trade-offs of Multicast Trees and Algorithms" Proceedings of the 1994 International Conference on Computer Communications and Networks (ICCCN '94) September 1994.
126. Deering, S., Estrin, D., Farinacci, D., Jacobson, V., Liu, C., Wei, L., "An Architecture for Wide-Area Multicast Routing" Proceedings of ACM Sigcomm '94, London, England, pps. 126-135, August 31-September 2, 1994.
127. Mitzel, D., Estrin, D., Shenker, S., Zhang, L., "An Architectural Comparison of ST-II and RSVP" Proceedings of IEEE Infocom '94, Toronto, Canada, June 1994.
128. Wei, L., Liaw, F., Estrin, D., Romanow, A., Lyon, T., "Analysis of Resequencer Model for Multicast over ATM Networks" Proceedings of the 3rd International Workshop on Network and Operating Systems, November 12-13, 1992.
129. Estrin, D., Rekhter, Y., Hotz, S., "Scalable Inter-Domain Routing Architecture" Proceedings of ACM Sigcomm '92 (08/17/1992) Baltimore, Maryland, pps. 40-52, August 17-20, 1992.

130. Estrin, D., Mitzel, D., "An Assessment of State and Lookup Overhead in Routers" Proceedings of IEEE INFOCOM '92, Florence, Italy, May 1992.
131. Meyers, K., Estrin, D., "A Network Management Tool for Inter-Domain Policy Routing" Proceedings of IEEE NOMS '92 Network Operations & Management Symposium, Memphis, TN, April 1992.
132. Cocchi, R., Estrin, D., Shenker, S., Zhang, L., "A Study of Priority Pricing in Multiple Service Class Networks" Proceedings of the ACM SIGCOMM 1991 Conference, Zurich, Switzerland, pps. 123-130, September 3-6, 1991.
133. Estrin, D., Zhang, L., "Design Considerations for Usage Accounting and Feedback in Internetworks" Proceedings of IFIP International Conference on Integrated Network Management, April 1991.
134. Estrin, D., Obraczka, K., "Connectivity Database Overhead for Inter-Domain Policy Routing" Proceedings of IEEE INFOCOM '91, Miami, Florida, April 1991.
135. Estrin, D., Tsudik, G., "Secure Policy Enforcement in Internetworks" Proceedings of DIMACS (1991) (Series in Discrete Mathematics and Theoretical Computer Science) Workshop, October 1989. Published as ACM/AMS DIMACS, Distributed Computing and Cryptography, Vol.2, 1991.
136. Hart, P., Estrin, D., "Computer Integration: A Co-Requirement for Effective InterOrganization Computer Network Implementation" Proceedings of the Conference on Computer Supported Cooperative Work, October 1990.
137. Breslau, L., Estrin, D., "Design of Inter-Administrative Domain Routing Protocols" Proceedings of ACM Sigcomm '90 (09/24/1990) Volume 20, Number 4, Philadelphia, PA, pps. 231-241, September 24-27, 1990.
138. Hart, P., and Estrin, D., "Inter-organization Computer Networks: Indications of Shifts in Interdependence" Proceedings of ACM Conference on Office Information Systems, published as SIGOIS Bulletin, Vol.11 (1-2), September 1990.
139. Estrin, D., Tsudik, G., "Security Issues in Policy Routing" Proceedings of IEEE Symposium on Research in Security and Privacy, May 1989.
140. Estrin, D., Tsudik, G., "Visa Scheme for Inter-Organization Network Security" Proceedings of IEEE Symposium on Security and Privacy, April 1987.
141. Estrin, D., "The Organizational Consequences of Inter-Organization Computer Networks" Proceedings of ACM Conference on Office Information Systems Published as SIGOIS Bulletin, Vol.7 (2-3), October 1986.
142. Estrin, D., "Inter-Organization Networks: Implications of Access Control Requirements for Interconnection Protocols" Proceedings of ACM Sigcomm '86, August 1986.
143. Estrin, D., "Interconnection of Private Networks: A Link between Industrial and Telecommunications Policy" The Fourteenth Annual Telecommunications Policy Research Conference, April 1986.
144. Estrin, D., "Non-Discretionary Controls for Inter-Organization Networks" Proceedings of IEEE Symposium on Security and Privacy, April 1985.

Books/Book Chapters

1. "Localization in Sensor Networks," A Savvides, L. Girod, M. Srivastava, and D. Estrin, in *Wireless Sensor Networks*, edited by Znati, Radhavendra and Sivalingam, 2004.
2. "Networked Infomechanical Systems (NIMS) for Ambient Intelligence", William J. Kaiser, Gregory J. Pottie, Mani Srivastava, Gaurav S. Sukhatme, John Villasenor, and Deborah Estrin CENS Technical Report 31, December 2003 (PDF File). Ambient Intelligence, J. Rabaey et. Al., 2004

3. "Wireless Sensor Networks: A Bridge to the Physical World," Jeremy Elson and Deborah Estrin, Introductory Chapter in *Wireless Sensor Networks*, Kluwer, 2004.
4. "Embedded, Everywhere: A Research Agenda for Networked Systems of Embedded Computers," Estrin, D.L., Borriello, G., Colwell, R.P., Fiddler, J., Horowitz, M., Kaiser, W.J., Leveson, N.G., Liskov, B.H., Lucas, P., Maher, D.P., Mankiewich, P.M., Taylor, R., Waldo, J., National Academy Press, Washington, D.C., pps. 1-215, 2001.
5. "Design of Inter-Administrative Domain Routing Protocols," Breslau, L., Estrin, D., *Computer Communications: Architecture, Protocols, and Standards 3rd Edition*, William Stallings, September 1990.

Technical Reports, Posters, and Magazine Articles

1. Viduyt Samanta, Jason Ryder, Sona Chaudhuri, Jeff Burke, Deborah Estrin, and Fabian Wagmister, "UCLA/Cisco Metropolitan Wi-Fi Research Network," IEEE LAN/MAN Workshop (Poster) 2007.
2. Vinayak Naik, Martin Lukac, Igor Stubailo, Allen Husker, Deborah Estrin. In Vivo Characterization of a Wide area 802.11b Wireless Seismic Array. CENS Technical Report #72, April 2007.
3. Gong Chen, Nathan Yau, Mark Hansen, and Deborah Estrin. Sharing Sensor Network Data. CENS Technical Report #71, March 2007.
4. Jeffrey Goldman, Nithya Ramanathan, Richard Ambrose, David A. Caron, Deborah Estrin, Jason C. Fisher, Robert Gilbert, Mark H. Hansen, Thomas C. Harmon, Jennifer Jay, William J. Kaiser, Gaurav S. Sukhatme, and Yu-Chong Tai, "Distributed Sensing Systems for Water Quality Assessment and Management." White Paper published and prepared by the Foresight and Governance Project at the Woodrow Wilson International Center for Scholars, February 2007.
5. N. Ramanathan, S. Rothenberg, D. Estrin, T. Harmon, C. Harvey, J. Jay, and E. Kohler, "Investigation of hydrologic and biogeochemical controls on arsenic mobilization using distributed sensing at field site in Munshiganj, Bangladesh" American Geophysical Union, Fall Meeting, (Poster) 2006.
6. Philip W. Rundel, Deborah Estrin, and William Kaiser. "Innovations in Environmental Monitoring," Southern California Environmental Report Card 2006: UCLA Institute of the Environment, pps. 30-37, 2006.
7. N. Ramanathan, T. Schoellhammer, D. Estrin, M. Hansen, T. Harmon, E. Kohler, M. Srivastava. The Final Frontier: Embedding Networked Sensor in the Soil. CENS Technical Report #68, November 2006.
8. Mani Srivastava, Mark Hansen, Jeff Burke, Andrew Parker, Sasank Reddy, Ganeriwal Saurabh, Mark Allman, Vern Paxson, and Deborah Estrin. Wireless Urban Sensing Systems. CENS Technical Report #65, April 2006.
9. Thomas Schoellhammer, Jennifer Wong, Mark Hansen, Miodrag Potkonjak, and Deborah Estrin. Sensor Deployment Using Interleaved Experimentation, Modeling and Optimization. CENS Technical Report #64, April 2006.
10. Richard Guy, Ben Greenstein, John Hicks, Rahul Kapur, Nithya Ramanathan, Tom Schoellhammer, Thanos Stathopoulos, Karen Weeks, Kevin Chang, Lew Girod, and Deborah Estrin. Experiences with the Extensible Sensing System ESS. CENS Technical Report #61, March 29, 2006.
11. Thomas Schoellhammer, Ben Greenstein, and Deborah Estrin. Hyper: A Routing Protocol to Support Mobile Users of Sensor Networks. CENS Technical Report #63, January 2006.
12. N. Ramanathan, L. Balzano, M. Burt, D. Estrin, T. Harmon, C. Harvey, J. Jay, E. Kohler, S. Rothenberg, and M. Srivastava. Rapid Deployment with Confidence: Calibration and Fault Detection in Environmental Sensor Networks. CENS Technical Report #62, 2006.

13. Nithya Ramanathan, Laura Balzano, Deborah Estrin, Mark Hansen, Thomas Harmon, Jenny Jay, William Kaiser, and Gaurav Sukhatme. "Designing Wireless Sensor Networks as a Shared Resource for Sustainable Development." First International Conference on Information and Communication Technologies and Development. (Poster Abstract) Berkeley, CA. 2006.
14. S. Ganeriwal, D. Ganesan, M. Hansen, M. B. Srivastava, D. Estrin. Rate-adaptive time synchronization for long-lived sensor networks. ACM Sigmetrics (Poster Abstract), 2005.
15. Ambrose, Richard, Deborah Estrin, Michael Hamilton, Tom Harmon, Jenny Jay, William J. Kaiser, Gregory J. Pottie, Mani Srivastava, Gaurav Sukhatme, John Villasenor, et. al. Networked Infomechanical Systems (NIMS). CENS Technical Poster Series.
16. Deborah Estrin, "Reliability and Storage in Sensor Networks," in CENS Technical Report #59, 2005.
17. Thanos Stathopoulos, Lewis Girod, John Heidemann, and Deborah Estrin, "Mote Herding for Tiered Wireless Sensor Networks," in CENS Technical Report #58, December 7, 2005.
18. Ramesh Govindan, Eddie Kohler, Deborah Estrin, Fang Bian, Krishna Chintalapudi, Om Gnawali, Ramakrishna Gummadi, Thanos Stathopoulos, "Tenet: An Architecture for Tiered Embedded Networks," in CENS Technical Report #56, November 10, 2005.
19. Ben Greenstein, Alex Pesterev, Christopher Mar, Eddie Kohler, Jack Judy, Shahin Farshchi, Deborah Estrin, "Collecting High-Rate Data Over Low-Rate Sensor Network Radios," in CENS Technical Report #55, 2005.
20. Lewis Girod, Martin Lukac, Andrew Parker, Thanos Stathopoulos, Jeffrey Tseng, Hanbiao Wang, Deborah Estrin, Richard Guy, Eddie Kohler. "A Reliable Multicast Mechanism for Sensor Network Applications," in CENS Technical Report #48, April 25, 2005.
21. Nithya Ramanathan, Kevin Chang, Rahul Kapur, Lewis Girod, Eddie Kohler, Deborah Estrin, "A Debugging System for Sensor Networks," in CENS Technical Report #47, April 12, 2005.
22. Hanbiao Wang, Lewis Girod, Nithya Ramanathan, Deborah Estrin, Kung Yao, "A Platform for Collaborative Acoustic Signal Processing". CENS Technical Report #46, January 2005.
23. N. Ramanathan, E. Kohler, L. Girod and D.Estrin. "Sympathy: A Debugging System for Sensor Networks," in Proceedings of EmNets (Poster) 2004.
24. J. Elson, L. Girod, and D. Estrin, "EmStar: Development with High System Visibility", IEEE Wireless Communication Magazine, December 2004.
25. P. Bergamo, S. Asgari, H. Wang, D. Maniezzo, L. Yip, R.E. Hudson, K. Yao, and D. Estrin, "Collaborative Sensor Networking Towards Real-Time Acoustical Beamforming in Free-Space and Limited Reverberence". IEEE Transactions on Mobile Computing, Vol. 3, No. 3, July – September 2004, pp. 211-224.
26. Henri Dubois-Ferriere and Deborah Estrin, "Efficient and Practical Query Scoping in Sensor Networks," in CENS Technical Report #39, April 2004.
27. M.A. Batalin, M. Rahimi, Y. Yu, D. Liu, A. Kansal, G.S. Sukhatme, W.J. Kaiser, M. Hansen, G.J. Pottie, M. Srivastava, D. Estrin, "Towards Event-Aware Adaptive Sampling Using Static and Mobile Nodes," in CENS Technical Report #38, 2004.
28. Lewis Girod, Thanos Stathopoulos, Nithya Ramanathan, Eric Osterweil, Tom Schoellhammer, Deborah Estrin, "Tools for Deployment and Simulation of Heterogeneous Sensor Networks," in CENS Technical Report #37, April 2004.
29. Hanbiao Wang, Kung Yao, Greg Pottie, Deborah Estrin, "Entropy-based Sensor Selection in Localization," ACM SenSys (Poster Abstract), 2003.
30. T. Stathopoulos, J. Heidemann, D. Estrin, "A Remote Code Update Mechanism for Wireless Sensor Networks," in CENS Technical Report #30, November 2003.

31. Norman Makoto Su, Heemin Park, Eric Bostrom, Jeff Burke, Mani B. Srivastava, Deborah Estrin, "Augmenting Film and Video Footage with Sensor Data," in CENS Technical Report #22, September 6, 2003.
32. Alberto Cerpa, Naim Busek, and Deborah Estrin, "SCALE: A Tool for Simple Connectivity Assessment in Lossy Environments". Cens Technical Report #21, September 5, 2003.
33. Thanos Stathopoulos and Deborah Estrin, "An Information-Driven Reliability Mechanism for Sensor Networks," in CENS Technical Report #16, June 24, 2003.
34. Yan Yu, Deepak Ganesan, Lewis Girod, Ramesh Govindan, Deborah Estrin, "Data Modeling and Synthetic Data Generation for Fine-Grained Networked Sensing," in CENS Technical Report #15, June 18, 2003.
35. Richard Karp, Jeremy Elson, Deborah Estrin, Scott Shenker, "Optimal and Global Time Synchronization in Sensornets," in CENS Technical Report #12, April 11, 2003.
36. Hanbiao Wang, Kung Yao, Greg Pottie, Deborah Estrin, "Entropy-based Sensor Selection for Localization," in CENS Technical Report #11, April 10, 2003.
37. Jeremy Elson, Solomon Bien, Naim Busek, Vladimir Bychkovskiy, Alberto Cerpa, Deepak Ganesan, Lewis Girod, Ben Greenstein, Tom Schoellhammer, Thanos Stathopoulos, and Deborah Estrin, "EmStar: An Environment for Developing Wireless Embedded Systems Software", CENS Technical Report #9, March 2003.
38. Ya Xu, Solomon Bein, Yutaka Mori, John Heidemann, Deborah Estrin, and Alberto Cerpa, "Topology Control Protocols to Conserve Energy in Wireless Ad Hoc Networks. CENS Technical Report #6, January 2003.
39. Nirupama Bulusu, John Heidemann, Deborah Estrin, Tommy Tran, "Self-configuring Localization Systems: Design and Experimental Evaluation," in CENS Technical Report #8, August 15, 2002.
40. Ganesan, D., Krishnamachari, B., Woo, A., Culler, D., Estrin, D., Wicker, S., Extended Abstract "Large-Scale Network Discovery: Design Tradeoffs in Wireless Sensor Systems" Proceedings of the Symposium on Operating Systems Principles (SOSP 2001), Lake Louise, Banff, Canada, poster, pps. 1-3, October 2001.
41. Estrin, D. Handley, M., Heidemann, J., McCanne, S., Xu, Y., Yu, H., "Network Visualization with the VINT Network Animator Nam," IEEE Computer Magazine, Vol. 33(11): pp.63-68 November 2000.
42. Govindan, R., Alaettinoglu, C., Eddy, G., Kessens, D., Kumar, S., W-S., "An Architecture for Stable, Analyzable Internet Routing," IEEE Network Magazine, pp.1-15, January 1999 – February 1999.
43. Estrin, D., Farinacci, D., Helmy, A., Thaler, D., Deering, S., Handely, M., Jacobson, V., Liu, C., Sharma, P., Wei, L., "Protocol Independent Multicast - Sparse Mode (PIM-SM): Protocol Specification" Experimental RFC, (Internet RFC), June 1998.
44. Deering, S., Estrin, D., Farinacci, D., Handley, M., Helmy, A., Jacobson, V., Liu, C., Sharma, P., Thaler, D., Wei, L., "Protocol Independent Multicast - Sparse Mode (PIM-SM): Motivation and Architecture" Experimental RFC,(InternetRFC), June 1997.
45. Estrin, D., Farinacci, D., Halmy, A., Jacobson, V., Wei, L., "Protocol Independent Multicast - Dense Mode (PIM-DM): Protocol Specification" Experimental RFC, (Internet RFC), September 1996.
46. Estrin, D., Farinacci, D., Helmy, A., Thaler, D., Deering, S., Handley, M., Jacobson, V., Liu, C., Sharma, P., Wei, L., "PIM Multicast Border Router (PMBR) specification for connecting PIM-SM domains to a DVMRP Backbone". (InternetRFC), September 1996.
47. Estrin, D., Helmy, A., "USC Implementation for PIM-SM" (InternetRFC), December 1995.
48. Zhang, L, Deering, S., Estrin, D., Shenker, S., Zappala, D., "RSVP: A New Resource ReSerVation Protocol," IEEE Network Magazine, Vol. 7 (5): pp. 8-18, September 1993.

49. Estrin, D., Streenstrup, M., "Inter-Domain Policy Routing: Overview of Architecture and Protocols," ACM SIGCOMM Computer Communication Review, Vol.21 (1): pp.71-78, January 1991.

Selected Invited Presentations

1. Participatory Sensing: Smartphones + Web Services + Social Networking. Invited speaker, Web 2.0 Summit, San Francisco, CA, October 21, 2009.
2. Participatory Sensing: from Ecosystems to Human Systems. Invited speaker, UCLA School of Public Health, Environmental Health Science M4II Seminar Series, UCLA, October 14, 2009.
3. Participatory Sensing: from Ecosystems to Human Systems. Invited speaker, The Engaging Data: First International Forum on the Application and Management of Personal Electronic Information, Cambridge, MA, October 12, 2009.
4. Participatory Sensing: from Ecosystems to Human Systems, from Chronic Concerns to Urgent Needs. Invited speaker, Smart Grid Research Symposium, Davidson Conference Center, University of Southern California, October 6, 2009.
5. Mobile Personal Sensing: from Ecosystems to Human Systems. Invited speaker, Workshop on Social Computing with Mobile Phones & Sensors: Modeling, Sensing and Sharing (SCMPS09) jointly w/SocialCom 2009, Vancouver, Canada, August 30, 2009.
6. Mobile Personal Sensing for Personalized Health and Wellness. D.Estrin & M.J. Rotheram. Invited presentation, National Institutes of Health, Washington, D.C., August 3, 2009.
7. Mobile Phones, Citizen Scientists and the Cloud. Invited speaker, Google, Santa Monica, CA, July 20, 2009.
8. Mobile Personal Sensing: from Ecosystems to Human Systems. Invited speaker, OSOITE-Overlay-network Search Oriented for Information about Town Events, Tokyo Denki University, Tokyo Japan, July 17, 2009.
9. Mobile Personal Sensing systems: Applications and Architecture. Invited speaker, KDDI Research and Development Laboratories Inc., Tokyo, Japan, July 5, 2009.
10. MobiArch'09 Panel Discussion on "Cloud Computing and Mobility - How Do These Two Fit Together?" MobiSys 2009. Invited panelist, Krakow, Poland, June 22, 2009.
11. Mobile Personal Sensing Systems: Applications and Architecture. Invited speaker, Microsoft Research, Redmond, WA, June 15, 2009.
12. Mobile Personal Sensing for Personalized Health Care and Management. Invited speaker, Using Sensor-based Networks to address Global Issues: Policy Opportunities and Challenges. OECD Experts Conference, Lisbon, Portugal June 8-9, 2009.
13. Participatory Sensing: an emerging driver for the multidimensional Internet. Invited speaker, Google, Multi-Dimensional View of the Internet Summit, Mountain View, CA, May 5-6, 2009.
14. Sensing everywhere: from Eco-systems to Human Systems. Invited speaker, Computing Commuting Consortium (CCC), Computing Research that Changed the World: Reflections and Perspectives, Washington, DC, March 25, 2009.
15. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited speaker, Center for HIV Identification, Prevention, and Treatment Services (CHIPTS) Core Committee Meeting, UCLA, Los Angeles, CA, February 9, 2009.
16. Mobile Personal Sensing for Eco-Responsibility. Invited speaker, Sensing LA: A workshop on scalable, affordable, and ready-to-use technologies for a sustainable city, UCLA, Los Angeles, CA, February 5, 2009.

17. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited speaker, Johns Hopkins University Whiting School of Engineering Distinguished Lecture Series, Baltimore, MD, February 3, 2009.
18. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited speaker, NSF Computer Science & Information Science & Engineering (CISE) Distinguished Lecture Series, Arlington, VA, February 2, 2009.
19. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited speaker, Center for HIV Identification, Prevention and Treatment Services (CHIPTS) Methods Seminar, UCLA, Los Angeles, CA, January 6, 2009.
20. Wireless Sensing: From Ecosystems to Human Systems. Keynote speaker, 42nd Annual Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, October 27, 2008.
21. Leveraging Everyday Mobile Phones in Support of Public and Personal Health. Invited speaker, UCLA Global Health Workshop - "Enhancing the Health of Women and Children Globally: An Interdisciplinary Approach." UCLA, October 23, 2008.
22. CENS Research Overview. Invited speaker, Bioacoustic Monitoring in the Terrestrial Environment Workshop. James Reserve, San Jacinto Mountains, October 16, 2008.
23. Mobile Sensing: Leveraging Mobile Phones to Support Personal, Community, and Participatory Sensing. Invited speaker, Nokia-UCLA Workshop on Mobile In-Sight. August 13-15, 2008, Nauvo, Finland.
24. National Instruments: Worldwide Graphical System Design Conference and Exhibition. Invited Panel of Experts, National Instruments, Austin, Texas, August 6, 2008.
25. Wireless Sensing: From Ecosystems to Human Systems. Invited Speaker, Sun Microsystems, San Jose, CA, July 30, 2008.
26. Leveraging Mobile Phones to Support Participatory Urban Sensing. Invited speaker, Intel, Portland, Oregon July 2008.
27. Leveraging Mobile Phones to Support Participatory Urban Sensing. Invited speaker, Samsung, Seoul, Korea June 2008.
28. The Organisation of Economic Co-Operation and Development (OECD) Ministerial Meeting on the Future of the Internet Economy. Panel of Experts, Invited talk, Coex, Seoul, Korea, June 2008.
29. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited Panelist, UCLA Engineering 2008 Technology Forum, Los Angeles, CA, May 27, 2008.
30. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Re-Discover UCLA. Invited Speaker, UCLA, Los Angeles, CA, May 17, 2008.
31. Everyday mobile phones: innovation platform for aging in place? Invited speaker, UCLA Technology & Aging Conference, Los Angeles, CA, May 9, 2008.
32. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited speaker, MacKay Lecturer, EECS Colloquium Lecture Series, Berkeley, CA, March 2008.
33. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited speaker, Distinguished Lecture in Computer Science, Columbia University, New York, February 2008.
34. Leveraging Mobile Phones to Support Participatory Urban Sensing. Invited speaker, MIT Media Lab, Boston, Massachusetts, February 2008.
35. Experiences in developing an *ecosystem* of wireless sensing systems for ecological observation. Invited speaker, Environmental Sensor Network Program at the Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, NC, January 2008.

36. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited speaker, James Reserve, San Jacinto Mountains, California, July 2007.
37. Wireless Sensing: The Internet's Front-Tier. Invited speaker, Federated Computing Research Conference, San Diego, California, June 2007.
38. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, Women's Institute in Summer Enrichment, University of California, Berkeley, June 2007.
39. Participatory Urban Sensing. Invited speaker, Women's Institute in Summer Enrichment, University of California, Berkeley, June 2007.
40. Center for Embedded Networked Sensing: Technology and Discovery on Land, Rivers and Oceans. Invited Speaker, UCLA HSEAS Technology Forum, Los Angeles, California, May 2007.
41. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, Campbell Lecture, Southampton University, UK, May 2007.
42. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, Boston University Symposium, Boston, Massachusetts, April 2007.
43. Participatory Sensing Roundtable. Invited Technical Keynote Presentation, British Columbia, Vancouver, March 2007.
44. IEEE PerCom 2007 Fifth Annual Conference on the Emerging Area of Pervasive Computing and Communications. Invited Panel Participant, White Plains, New York, March 2007.
45. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, New Jersey Institute of Technology, Newark, New Jersey, March 2007.
46. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, Syracuse University, Syracuse, New York, March 2007.
47. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, UCLA Professor in the Union, Los Angeles, California March 13, 2007.
48. Wireless Sensing Systems: from ecosystems to Human systems. Invited panel, Nokia, Palo Alto, California, March 9, 2007.
49. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, Institute for Computing Information & Cognitive Systems Distinguished Lecture Series, Vancouver, British Columbia, February 2007.
50. Wireless Sensing Systems: from ecosystems to Human systems. Invited lecture, UCLA Science Faculty Research Colloquium Series, Los Angeles, California, February 2007.
51. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, Computational Sciences Lecture Series (CSLS) Sensor Networks and Beyond, Madison, Wisconsin, February 2007.
52. Wireless Sensing Systems: from ecosystems to Human systems. Invited speaker, IEEE RWS, Long Beach, California, January 2007.
53. Embedded cyberinfrastructure for distributed observatories. Keynote Speaker, Third Annual IMUA NSF Hawaii EPSCor Statewide Conference, Honolulu, HI. November 2006.
54. Wireless Sensing Systems: from Eco-systems to Human-systems. Invited speaker, Feedback and Dynamics in Nature Workshop held at the Grace Hopper Celebration of Women in Computing Conference. San Diego, California, October 2006.
55. Wireless Sensing Systems: from Eco-systems to Human-systems. Athena Award Lecture, twelfth Annual Conference on Mobile Computing and Networking, MobiCom, Marina del Rey, California, September 2006.

56. Embedded Networked Sensing: from Eco-systems to Human-systems. Invited speaker, Distinguished Career Lecture Series Colloquium, Cornell University, Ithaca, New York, August 2006.
57. Partisans: Participatory Sensing@CENS. Invited speaker, Summer Institute on the World-Wide Web Workshop, Microsoft Research, University of Washington, August 2006.
58. Embedded Networked Sensing for Environmental Monitoring. Invited speaker, Honeywell, Arizona, May, 2006.
59. Embedded Networked Sensing. Urban Sensing Summit – REMAP Panelist, UCLA, May, 2006.
60. Center for Embedded Networked Sensing. Invited speaker, UC Regents, Yosemite, California, April, 2006.
61. Embedded Networked Sensing: Urban Applications. Invited speaker, Google, Mountain View, California, March 17, 2006.
62. Center for Embedded Networked Sensing. Invited speaker, Center for Nonlinear Studies Conference, Albuquerque, New Mexico, March 9, 2006.
63. Some Thoughts on Enabling SensorPlanet. Invited speaker, Nokia Workshop, November, 2005.
64. Sensor Networks Redux. Invited speaker, Microsoft Research Workshop on Sensor Networks, Seattle, WA, October 2005.
65. Sensor Networks. Invited speaker, NRC Statistics workshop on Statistics of networks. September 26, 2005.
66. Drivers for Adaptive and Programmable Network and Distributed System Services. Invited speaker, NSF Wireless Workshop, August, 2005.
67. The role of embedded networked sensing in NEON. Invited speaker, Ecological Society of America. Montreal, Canada. July 2005.
68. The smarts behind smart sensors: How networked sensors may help save the planet. Invited speaker, H-SEAS-Alumni, July 2005.
69. Embedded Networked Sensing for Environmental Monitoring, Invited speaker, New York, June 2005.
70. The smarts behind smart sensors: How networked sensors may help save the planet, Invited speaker, Kabri, June 2005.
71. Embedded Networked Sensing: Overview of Activities at CENS. Invited speaker, Agilent, May 2, 2005.
72. Embedded Networked Sensing for environmental monitoring, Invited speaker, IBM Research laboratory, March 2005.
73. Networked Sensing Systems: From Macro to Nano: Challenges and Opportunities in Integrative Complex Systems Engineering, Invited speaker, NSF Workshop, March 7, 2005.
74. A historical perspective on sensor networks research, Invited speaker, Nokia workshop on wireless sensor networks, February 6, 2005.
75. Embedding the Internet: How smart sensors may help save the planet, MIT Distinguished Lecturer Series, Boston, Massachusetts, February, 2005.
76. The Smarts behind smart sensors, Invited Speaker, World Economic Conference, Davos, Switzerland, January, 2005.
77. Experiences with sensor network application development and embedded cyberinfrastructure, Invited Speaker, NSF NeTS workshop, February 2004.
78. Instrumenting the world with wireless sensor networks, AAAS Invited Topical Lecture, AAAS Annual meeting, February 2004.

79. Instrumenting the world with wireless sensor networks, Invited Seminar, Harvard University Computer Science Department, February 2004.
80. Embedded CyberInfrastructure, Invited Presentation NSF Workshop on CyberInfrastructure for Engineering, January 2004.
81. Embedded Networked Sensing Systems: motivations and challenges, Stanford University invited Seminar, January 2004.
82. Wireless Sensor Networks: Introduction to applications and systems issues, October 2003, SAMSI Workshop on sensor networks.
83. Embedded Networked Sensing for Environmental Monitoring: Applications and Challenges, Invited talk, DIALM-POMC Joint Workshop on Foundations of Mobile Computing, San Diego, CA, September 19th, 2003.
84. "Center for Embedded Networked Sensing", Presented at the NSF Electrical and Communications Systems (ECS) Division Wireless Sensor Networks workshop, UCLA, September 8th, 2003.
85. "Embedded Networked Sensing for Environmental Monitoring", Presented at University of New South Wales, Sydney, Australia, August 29, 2003
86. "Embedded Networked Sensing", Presented at the NSF Sponsored Environmental Cyberinfrastructure Needs for Distributed Sensor Networks Workshop, San Diego, California, August 2003.
87. "Making Sensor Networks Real for Scientists", Presented at the UCB NEST retreat, Berkeley California, June 2003.
88. "Embedded Networked Sensing for Environmental Monitoring", Presented at National Center for Atmospheric Research (NCAR), Boulder Colorado, April 1, 2003
89. Overview of CENS systems under construction and associated challenge problems. Invited presentation at NSF sponsored workshop on Sensors and Sensor Networks, Northwestern University, December 5-6, 2002
90. "Sensor Networks: Emerging Research Challenges" (10/21/2002) UCSD Computer Science Department Distinguished Lecture Presentations, UCSD Computer Science Department, La Jolla, CA, October 21, 2002.
91. "Technology for the Future" (10/11/2002) HSSEAS Symposium, CENS Presentation, UCLA, Los Angeles, CA, October 11, 2002.
92. Wireless Sensor Networks: From Rhetoric to(ward) Rigor Sigmetrics Keynote, June 2002.
93. Embedded Networked Sensing for Environmental Monitoring Circuits and Systems Workshop Keynote, June, 2002.
94. "This Century Challenges: Sensor Network for Environmental Monitoring"(February 2002) UCSD Research Review, La Jolla, CA, February 2002. (Invited)
95. "Wireless Sensor Networks: Application Driver for Low Power Distributed Systems" (August 2001) International Symposium on Low Power Electronics and Design Conference, Long Beach, CA, August 2001. (Invited)
96. "Common Sense: Research Challenges in Embedded Networked Sensing"(04/27/2001) UCLA, Computer Science Department, Los Angeles, CA, April 27, 2001.(Invited)
97. "SCADDS Research Update" (April 2001) DARPA PI Meeting, St. Petersburg, FL, April 2001.
98. "Some Distributed Coordination Schemes for Wireless Sensor Networks"(11/16/2000) Stanford Network Seminar Series, Stanford, CA, November 16, 2000.
99. "Wireless Sensor Networks: Instrumenting the Physical World" (October2000) Super Computer 2000 Conference, panel presentation, Dallas, TX, October 2000.

100. "SCADDS Research Update" (October 2000) DARPA PI Meeting, Honolulu, HI, October 2000.
101. "Bias: Network Challenges are the greatest for Unattended and Un-tethered (wireless) operation" (03/02/2000) Networked Embedded Systems Technology Workshop, Seattle, WA, March 2, 2000, (Invited).
102. "Sensor Networks: An Architecture for Sensor Networks" (02/07/2000) University of California Berkeley, February 7, 2000, (Invited Retreat).
103. "Research Agenda in Sensor Networks" (12/06/1999) End to End Research Meeting, San Jose, CA, December 6, 1999, (Invited).
104. "SCADDS Research Update" (10/07/1999) DARPA Sensor Nets Workshop, Marina del Rey, CA, October 7, 1999, (Invited).
105. "SCADDS Project Overview" (07/27/1999) SenseIT/KickOff Meeting, Washington, D.C., July 27, 1999, (Invited).
106. "Bi-directional PIM Multicast Routing Protocol" Working Group presentation at the 45th Internet Engineering Task Force (07/12/1999) Oslo, Norway, July 12, 1999. (Invited)
107. "Scalable Coordination Architecture for Deeply Distributed Systems"(05/23/1999) at the Wireless Information Network Laboratory (WINLAB) Berkeley Focus '99 Workshop, Newark, NJ, May 23, 1999, (Invited).
108. Embedding the Internet, MIT LCS 35th Anniversary Colloquium, April 1999. (Invited).
109. "Multicast: Challenges and Opportunities" at Nortel Networks Design Forum (04/20/1999) San Jose, CA, April 20, 1999, (Invited).
110. "Simple Systems: ISAT Study" (01/28/1998) Washington, January 28, May 7, and August 1998, (Invited Presentations).
111. National Academy of Engineering Study on the Relationship between University Research and Industrial Development, Irvine, CA, January 21, 1998 (Invited Panel Speaker).
112. UC Berkeley MASH research retreat, Berkeley, CA, January 12-14, 1998. (Invited Participant).
113. "Scaling the Internet" Southern California Software Engineering Symposium (11/07/1997) UC Irvine, CA, November 7, 1997. (Keynote Invited Speaker).
114. "Multicast: Enabler and Challenge" (11/06/1997) Harvey Mudd, Claremont College, Computer Science Department, Claremont, CA, November 6, 1997. (Invited Seminar).
115. DARPA Network Management PI Meeting, Princeton, NJ, October 27-28, 1997, (Invited Presentation).
116. DIMACS Workshop on Network Modeling and Simulation, Princeton, NJ, October 22-23, 1997, (Invited Presentation).
117. IETF, Interdomain Multicast Routing (IDMR) Working Group, Munich, Germany, July 1997, (Invited Presentation).
118. Next Generation Internet NSF-sponsored workshop, Architecture Working Group, Virginia, May 13-14, 1997. (Invited Participant).
119. "Virtual Internet Testbed (VINT)" ISMA Workshop (05/01/1997) UC San Diego, La Jolla, CA, May 1-2, 1997. (Invited Speaker).
120. "Internet Multicast and Multimedia Technologies"(May 1997) Interop Tutorial, Las Vegas, NV, May 1997, 1998 and Atlanta, GA, October 1996, 1997, (Invited with Zhang, L., Deering, S.,).
121. "Multicast: Enabler and Challenge" (04/23/1997) Princeton University Computer Science Department, Princeton, New Jersey, April 23, 1997. (Invited)

122. "Virtual Internet Testbed (VINT)" (March 1997) DARPA Networking Principal Investigators Conference, Baltimore, MD, March 1997, (Invited).
123. "Multicast Multimedia on the Internet" (February 1997) UCLA Extension Course, Los Angeles, CA, February 1997. (Invited with Zhang, L., Deering, S.)
124. "Internet II" (01/13/1997) National Academy of Engineering, CSTB Board Meeting, Irvine, CA, January 13, 1997, (Invited Commentator).
125. "PIM-SM Specification" (November 1996) IETF IDMR Working Group, San Jose, CA, November 1996. (Invited)
126. "Virtual Internet Testbed (VINT)" (July 1996) ISI, Presentation to DARPA Program Manager, Los Angeles, CA, July 1996. (Invited).
127. D.ACM Workshop on Strategic Directions in Computing Research (06/14/1996) MIT, Boston, MA, June 14-15, 1996. (Invited Participant).
128. "QOS routing" End to End Research Group Meeting (June 1996) June 1996,(Invited).
129. "PIM Design Update" (June 1996) IETF IDMR Working Group, June 1996,(Invited).
130. "Scalable Loosely-Coupled Systems" DARPA ISAT Board Meeting (May 1996) Working group Chair, Arlington, Virginia, May 1996. (Invited).
131. "Policy-based Multicast Routing: Just say no!" 3rd International Workshop on Community Networking (May 1996) Antwerp Belgium, May 1996,(Invited Workshop Participant).
132. "Design of a Scalable Multicast Routing Protocol" (May 1996) Stanford University, Computer Systems Colloquium, Stanford, CA, May 1996. (Invited)
133. "Source Demand Routing" (December 1995) IETF SDR Working Group, December 1995, (Invited).
134. "Interoperability Architecture for PIM-SM" (December 1995) IETF IDMR Working Group, December 1995, (Invited).
135. "Routing Support for Resource Reservations" IEEE Computer Communications Workshop (November 1994) Hawks Quai, Florida, November 1994,(Invited Paper).
136. "Protocol Independent Multicast" IETF (November 1994) Plenary Speaker, November 1994, (Invited).
137. "Wide-Area Multicast Routing Support for Sparse Groups" IEEE Communications Workshop '93 (10/18/1993) San Diego, CA, October 18-20, 1993,(Invited).
138. "Multicast Reservation Setup Protocol (RSVP)" Networkers '94 (October 1993) June 30, 1994 (Guest Speaker), Chicago, INTEROP EUROPE '93, Paris, France, October 1993, (Invited).
139. "Routing in Large Internetworks" (August 1993) INET '93, San Francisco, CA, August 1993. (Invited).
140. Cisco Systems, Routing for the Future, February 1993,(Invited).
141. CNRI Workshop on High Performance Network Evaluation, February 1993 and March 1993, (Invited).
142. University of Colorado, Boulder, Routing for Global Scale Internets, Boulder, Colorado, January 1993. (Invited).
143. "Source Demand Routing Protocol" (November 1992) Internet Engineering Task Force, Washington, D.C., November 1992, (Invited Presentation).
144. "Global Internet Simulation, Emulation, and Visualization" (October 1992) National Science Foundation, CISE-NCRI Division, October 1992, (Invited).
145. "Routing for Global Internets" (May 1992) The Technion University, Haifa, Israel, May 1992, (Invited).

146. "Resources Management Internet Protocol" (January 1992) Dartnet Workshop, ISI, Marina Del Rey, CA, January 1992, (Invited).
147. "A Unified Approach to Inter-Domain Routing" (11/20/1991) Internet Engineering Task Force, Santa Fe, New Mexico, November 20, 1991, (Invited Speaker).
148. Symposium on Gigabit Networks (07/15/1991) Washington, D.C., July 15-17, 1991, (Invited Speaker).
149. Internet Activities Board Workshop on Future of the Internet Architecture, University of California, San Diego, La Jolla, CA, June 11-13, 1991.(Invited Speaker).
150. USC Board of Trustees, Annual Meeting, Palms Springs, CA, April 12-14, 1991, (Invited).
151. Mitsubishi Study Group on Computers and Communications, USC, Los Angeles, CA, November 1990. (Invited Speaker).
152. MIT Workshop on Inter-Domain Routing, Boston, MA, June 1990. (Invited Participant).
153. Harvard-OTA Workshop on Commercialization of the Internet, Cambridge, MA, February 1990. (Invited Participant).
154. University Seminars (1990-1991), Carnegie Mellon University, Columbia, Massachusetts Institute of Technology, UC Berkeley, UCLA, University of Wisconsin, Madison, (Invited).
155. Interop '89 (November 1989) Speaker and Panel Chair, San Jose, CA, November 1989. (Invited).
156. Infosec '89 Conference on Network Security (November 1989) Palm Springs, CA, November 1989. (Invited Speaker).
157. Internet Activities Board Invitational Workshop, Santa Clara, CA, January 1989, (Invited).
158. Industrial Research Laboratories (1989-1991), AT&T Bell Laboratories, Xerox PARC, Digital Equipment Corporation Systems Research Center, GTE Laboratories, (Invited).
159. European ACM SIGOP's Workshop on Autonomy or Interdependence in Distributed Systems, Cambridge University, England, September 1988, (Invited).
160. Office of Technology Assessment, Communications Systems for an Information Age, January 1987, (Invited Workshop Participant).
161. National Communications Forum Speaker and Faculty Fellow, Tutorial on Inter-Organization Networks, Chicago, IL, October 1986, (Invited).
162. UCLA Graduate School of Management, Seminar, Organizational Consequences of Inter-Organization Network, Los Angeles, CA, October 1986. (Invited)
163. American Chemical Society Annual Meeting, Symposium on Wide Area Computer Networks: Technology and Benefits, New York, NY, April 1986, (Invited).
164. ACM Workshop on Accommodating Heterogeneity Position Paper and Participant, Orcas Island, WA, December 1985, (Invited).

Reference

References available upon request